http://journals.uonbi.ac.ke/index.php/adfj
ISSN 2522-3186

African Development Finance Journal http://journals.uonbi.ac.ke/index.php/adfj
June Vol 8 No.5, 2025 PP 129-159 ISSN 2522-3186

The Influence of Ostrich effect on Portfolio Returns among Individual Investors at Nairobi Securities Exchange

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Abstract

The purpose of this research was to analyze the effect of the ostrich effect on portfolio returns for Kenyan retail investors trading on the Nairobi Securities Exchange. The research used a descriptive correlational survey approach. The intended audience comprised of all the 1,680,901 individual local investors at the NSE as at the end of the year 2022 (CMA, 2022). To choose the sample for the investigation, basic random sampling was used. Individual local investors at the NSE as of December 31, 2022, are the unit of analysis. A sample size of 400 respondents was considered. The research findings depicted that respondents exhibited ostrich effect to a moderate extent. This was evidenced through investors avoiding bad news, inattention to new information, biased interpretation of information and forgetting and ignoring information presented. The study concluded that ostrich effect significantly affect portfolio returns. However, a small percentage of variations in portfolio returns was caused by ostrich effect as evidenced by the coefficient of determination. The study recommends that individual investors to refrain from succumbing to the ostrich effect and, in order to form informed judgments, to prioritize fundamental analysis of companies. The research also suggests that individual investors should avoid the biases created by the ostrich effect and instead look for knowledge on how to improve their investments by holding effective portfolios. Individual investors should avoid falling into the trap of underestimating their capacity to do investing research and make improvements to the assets in their portfolios.

Keywords: *Ostrich effect, Portfolio returns, Efficient market hypothesis, Investor bias*

1. Introduction

Ostrich effect is a cognitive bias that describes how individuals tend to ignore information that could help them monitor their progress toward their goals, such as negative feedback. In investment decision making, it is a situation where the stockholders avoid perilous monetary circumstances by imagining that they are non-existent. The two primary elements of the ostrich effect are the tendency for people to deny the existence of unpleasant knowledge and the impact on financial market prices (Misuraca et al., 2022). The claim is that when faced with uncertain investments, people favored those where the risk was unreported over those with a comparable risk-return profile but frequent risk reporting. It represents the propensity of investors to act as though risky financial situations do not exist to avoid them. It is irrational behavior of investors and may lead to making bad decisions, allowing things to snowball and failure to meet financial objectives (Young, 2022). Behavioral biases may aim to optimize or influence portfolio returns,

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since when investors hold portfolios; they aim to produce a balanced return over time (Panwar, 2014).

Ostrich effect show that after receiving good news, people are more active in gathering knowledge, whereas they are less likely to get bad news to prevent its repugnant impact psychologically (Caia, & Lu, 2019). The underlying assumption is that those investing are inattentive to the market following a bad historical portfolio returns since their total attentiveness is reduced. There is also significant variation in investor attention, which needs to be considered when examining the link between attention and investment performance (Sicherman et al., 2016). Ostrich effect phenomena cause affirmative affiliation amid liquidity as well as most of the market information.

Limited studies have been conducted on the effect of ostrich on portfolio returns. In the reviewed studies, methodological gaps are evidenced from lack of appropriate test to predict the ostrich behaviour on individual investors. Contextual gap is also depicted because the studies reviewed were done in other financial markets, not Kenya. This demonstrates a contextual gap because the effects of behavioural biases differ from one location to another (Chen et al., 2007). Methodological gaps are evidenced in the researchers reviewed. Firstly, some studies have used findings from controlled markets which may not be applicable in the actual market. Secondly, most of the conducted research reviewed applied the secondary statistics in their scrutiny of the ostrich behaviour. Actual measure of ostrich effect may not be adequately tested using secondary data. Primary data appropriately measured individual investor's feelings and actions.

1.2 Research Objective

To examine the influence of ostrich effect on portfolio returns among individual investors registered at Nairobi Securities Exchange, Kenya.

2. Literature Review

This section presents theories employed in the research, empirical research, variables affecting portfolio returns and individual investments. The section also summarizes literature review leading to identification of research gaps and a conceptual model, which indicates how the variables under study are related. The Modern Portfolio Theory (MPT) by Markowitz (1952), the Prospect Theory

(PT) by Kahneman and Tversky (1979), and the Efficient Market Hypothesis (EMH) by Fama (1970) are a few examples of theoretical reviews.

2.1 Theoretical Review

This research is on the Modern Portfolio Theory (MPT) by Markowitz (1952), Prospect Theory (PT) by Kahneman and Tversky (1979) and Efficient Market Hypothesis (EMH) by Fama (1970). The anchoring theory is the Prospect Theory.

2.1.1 Prospect Theory

It was introduced by Kahneman and Tversky (1979). According to the theorem, people choose based less on the result than on the advantages and losses they might experience in respect to a particular reference point. In contrast to anticipated utility theory, which maintains that everyone's tolerance for risk is the same, it asserts that everyone's tolerance for risk varies when it involves benefits as opposed to losses (Dvorackova, Jochec, & Tichy, 2019). Prospect theory emphasizes the disposition effect, which is the inclination of investors to prematurely divest winning equities and retain losers for an extended period of time, to optimize the S-shaped value function it predicts. Bromberg-Martin and Monosov (2020) assert that people prefer to collect knowledge regarding wins since it makes them feel better because they anticipate that learning about possible benefits and losses would have, respectively, beneficial, and negative effects.

Because it explains behavioral biasness in individual investment decision-making, the theory is relevant today. When faced with uncertainty, some people favor investments where the risk is not stated over comparable assets where the risk is regularly reported (Reisch et al., 2021). Contrary to popular belief, people don't always evaluate options considering a "reference point" and benefits and losses. Because belief systems are the basis for probability and decision analysis, the theory is attacked for failing to examine or understand them. Additionally, it makes the unpractical assumption that judgments are made mechanically without considering other elements like taxes, government rules, the quantity of beneficiaries, and the time frame (Gisbert-Pérez, Mart-Vilar, & González-Sala, 2022). Prospect Theory also fails to consider the reality that decision-makers occasionally assign probabilities and/or decision-weights to events in illogical, arbitrary, and unreliable ways.

2.1.2 Modern Portfolio Theory

Markowitz (1952) proposed the Modern Portfolio Theory (MPT). It asserts the need to combine assets or securities invested in to help reduce risks and improve returns. MPT explains that investors must make a deliberate attempt to classify, estimate, and control risks and returns to enable them to maximize expected returns of a portfolio for a given level of risks. It guides the way individuals and organizations allocate financial resources among available investments (Abugwu, Kur, Urama, & Abbah, 2022). The theory further helps in the assessment of an individual's diversification of risks on assets held, which helps to determine whether the risk is a factor in the determination of individual investments held. The theory aids in formalizing notions regarding how a rational investor would make an investment in a portfolio of assets by taking on risk to get higher returns (Frydman, Camerer, & 2016). It contributes to a discussion of how investors would select which stocks to hold and how these decisions would affect market pricing.

The applicability of the theory is predicated on the manner in which it assists investors in the classification, estimation, and regulation of investment decisions. To maximize expected returns on a portfolio given a given level of risk or, conversely, to limit risk on a given level of expected return, it is necessary to consider both the nature and magnitude of this return and risk. The MPT's basic tenet is that any asset in an investing portfolio should not be chosen only based on its merits. It is critical to evaluate the relationship between the price fluctuations of each individual asset and the prices of all other assets in the portfolio. Individual investors would select a portfolio of investments based on the type of available information if the ostrich effect were to apply. The model used in the theory is criticized for not reflecting the reality in the real world. The approach is criticized for having no understanding of sociocultural viewpoints on contemporary investment, personal difficulties, or the environment (Omisore, Yusuf, & Nwufo, 2012).

2.1.3 Efficient Market Hypothesis

Fama (1970) advanced this hypothesis. It asserts that asset prices in the market at any one time should represent an objective reflection of all currently available information and that returns on investments should be consistent with the level of risk that investors perceive. Therefore, investors are unable to use any investment techniques to achieve unusual profits. An efficient market, according to Fama (1965), is characterized by the presence of information at hand is employed by

a large number of profit-maximizing, rational, competitive investors to predict the future value of assets. Since actual asset prices incorporate the impact of all available information at any given time in an effective market, they are accurate estimates of their inherent worth due to competition between several experienced traders (Woo et al., 2020).

The theory's applicability is predicated on the claim that when a rational economic person enters the stock market, their goal is to maximize their earnings (Roche, 2021). This is because not all stock market investors appear to be rational enough. The market anomalies that result in a reduced frequency of information increase the market appeal of the less favourable investment, which raises demand (Wong, 2020). The emphasis is on how information has been shown to have an impact on behaviour, particularly during uncertain periods when people may choose to withhold information and deny a threat. However, critics noted that the use of the calendar, fundamental, technical, and insider trading to produce anomalous gains contradicts the efficient market theory (Kumar, 2017).

2.2 Empirical Review

Regarding the study's factors, several studies have been found to be pertinent. Adil, Singh, and Ansari (2021) looked at how behavioral biases affect gender-based investment choices. The moderating effect that knowledge of finance has on the correlation between irrational behaviours, prejudices and investing preferences among gender was investigated. In this study, a research design known as cross-sectional was utilized. Two hundred and fifty-three people undertaking investments in the Delhi-NCR region provided the information using a methodical questionnaire. Within the context of the research project, a hierarchical regression analysis was applied in order to evaluate the hypothesis. Male investors' investment decisions were negatively and statistically significantly impacted by risk aversion and herding, according to the findings of the study. However, overconfidence had a considerable and positive effect. On the contrary, the influence of disposition was found to be not statistically significant.

Raheja and Dhiman (2020) examined how investors' psychological and behavioral aspects affected their choice of investments. 500 financial experts provided the information. The system of purposive testing was employed. The analysis discovered a good relationship between the financial

specialists' conduct tendencies and speculators' venture decisions, as well as a favourable relationship between their enthusiastic insight and those decisions. It was found that the enthusiastic insight predicts the financial experts' business decisions more accurately than their conduct tendencies.

Bagodi and Sagar (2021) researched the factors that affect investors' decisions to invest. 14 qualities made up a study instrument that was created and distributed to 2100 respondents. A KANO model was created in categorization of the information into ‘must be', 'linear', and 'pleasure' properties after 467 responses were gathered over the course of 6 months. The study identified sector-specific elements influencing investors' decision-making that aid in understanding investor behaviour regarding investment decisions.

Iqbal, Haq, and Muhamad (2020) investigated how psychological traits including optimism, self-assurance, averting losses, and herding behaviour may hinder investment choices in SMEs. The study used a basic random sampling strategy to interview 249 samples using self-administrative questionnaires because there was no questionnaire prior. The questionnaire's reliability score is 0.71. Through exploratory factor analysis (EFA), the questionnaire's validity and Cronbach's Alpha Static were assessed. Descriptive statistics, frequency, and binary logistic regression were employed in the study. The outcome of the binary logistic model showed that, except for loss aversion, all psychological sub-factors are positively significant with investing choice. Thus, it may be said that investors are rational and that psychological considerations occasionally affect their choice of investments in SMEs.

Suresh (2021) examined how behavioral biases and financial literacy interact to influence investment choices. To elicit research variables, a questionnaire was created using the Likert scale approach. The acquired data was then analyzed through the SEM technique. The findings demonstrated a substantial positive connection between heuristic bias and the development of behavioral bias in decision-making. The framing effect, cognitive delusions, and herd mentality, however, have detrimental effects on the development of behavioral biases. Additionally, when making financial judgments, investors frequently employ and adhere to heuristic biases rather than

using alternative irrational strategies. As a result, individual investors' financial literacy significantly influences their choice of stock market investments.

Kumar and Goyal (2019) investigated behavioral biases among Indian investors. For the study, knowledgeable financial counsellors and brokers who work with individual investors were questioned. Open coding and a thematic content analysis technique were used in the analysis of the data. The findings of this study indicate that there are a variety of beliefs and habits among investors (divided into cognitive mistakes, emotional biases, and social interactions) that influence their choice of investments. According to this study, financial planners and counsellors may be better equipped to assist their clients in making better financial decisions, which could potentially result in better investment outcomes, if they are aware of the behavioral biases of individual investors.

Hilchey and Soman (2023) investigated the ostrich effect and whether the need for information is impacted by the desire for data regarding potential victories and losses. The study sought to ascertain whether using outcome information to choose moderating variable by distributing 800 adults at random to one of two computer-based gambling activities was possible. The most important finding was that when participants made their own decisions, demand for complete information regarding losses grew dramatically, and outcome information was crucial. The results imply that information concerning losses loses importance, especially when people are powerless to change payoffs.

Kimeu, Onyango, and Rotich (2016) looked at how behaviour affected people's investment choices in NSE. The study aimed to investigate the connection between investment decision-making and prospect factors, heuristic factors, herding factors, and rationality. Investors who have purchased stocks and bonds on the NSE as at the third quarter of 2015 made up the research population. 80 participants were chosen as the study's sample size using a straightforward random sampling procedure. Closed-ended questionnaires were utilized to gather primary data, and stockbrokers' registered offices were employed in a pick-and-drop approach. Data analysis employed descriptive statistics. The study concluded that behavioral elements including prospect, herding, heuristic, and rationality have a beneficial influence on investment decisions in the Nairobi Securities Exchange.

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ISSN 2522-3186

Ong'eta (2022) investigated the market factors influencing individual investor performance on the NSE. For the Nairobi Securities Exchange to accomplish its goal of 1,196,995 individual investors, the researcher used a survey study approach. The researcher, who also used the Slovin's approach to estimate the population size of 400 samples. Using a standardized questionnaire, primary data was collected. The study discovered that, in contrast to expert knowledge, public information significantly influences individual investors' investment success on the NSE.

2.3 Conceptual Framework

The ostrich effect, which was measured by the mean from the questionnaires based on behaviors like physical evasion, carelessness, inaccurate information interpretation, and forgetfulness and disregarding information presented, is the independent variable in this study. The Sharpe ratio was used to calculate the dependent variable, which is represented by portfolio returns. The relationship is depicted in Figure 1.

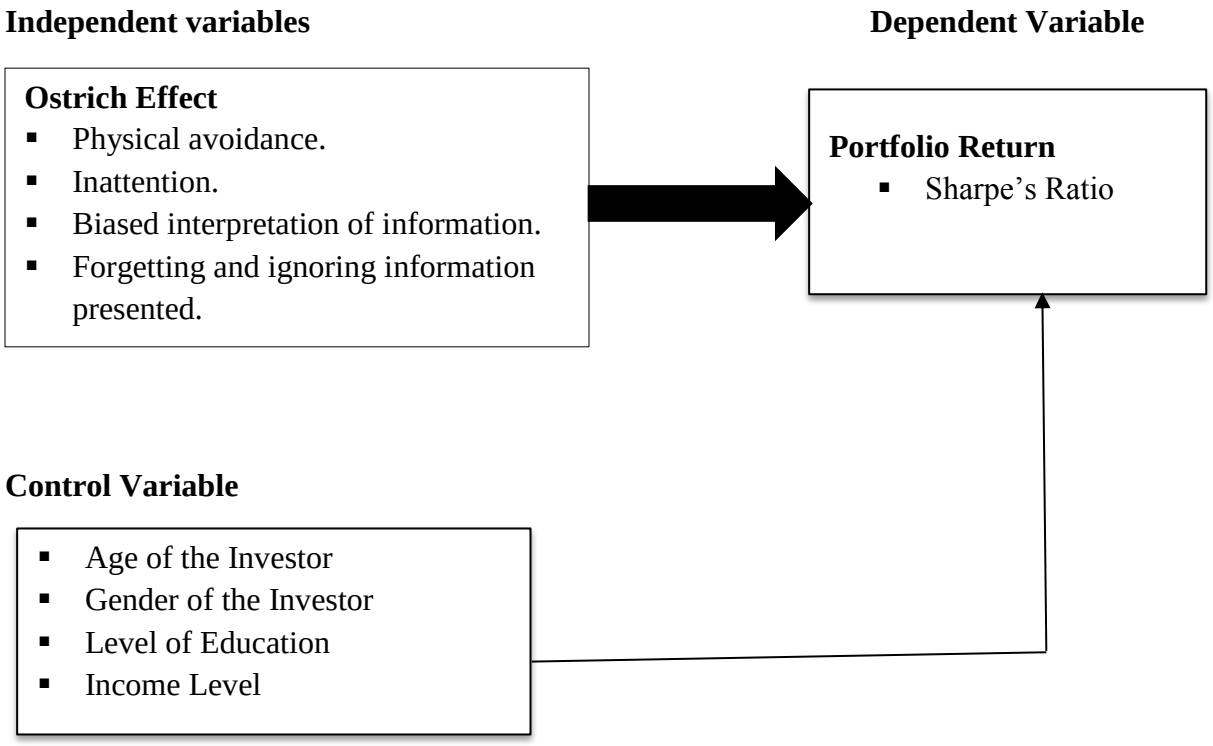

Figure 1: Conceptual Framework

3. Research Methodology

3.1 Introduction

The section gives insights on the targeted population, diagnostic tests, data gathering techniques, data processing methods, and presentation tactics are all discussed in the context of the study design.

3.2. Research design

Research was conducted using a descriptive correlational survey design. This method is employed in research that intend to establish the relationship among several factors and present static images of situations (McBurney & White, 2009). Two variables are examined in correlational research to determine their relationship. Saunders, Lewis, and Thornhill (2009) assert that descriptive survey study presents an accurate description of the people, activities, or circumstances under study and gives the researcher the chance to collect data from a significant number of informants.

3.3 Population

All 1,680,901 individual local investors at the NSE constituted the targeted population for this study, as at the end of the year 2022 (CMA, 2022).

3.4 Sample Size and Technique

To choose the sample for the investigation, basic random sampling was used. Individual local investors at the NSE as of December 31, 2022, are the unit of analysis. The Yamane formula (Yamane, 1967) was adopted to count how many samples to take. To determine the appropriate number of samples, the formula employed was as follows:

$$\text{Sample size} = \frac{N}{1 + Ne^2}$$

Where N = Total population

e = Error margin

The exact sample size was therefore be computed as:

$$\frac{1{,}680{,}901}{1 + 1{,}680{,}901\ (0.05)^2}$$

$$n = 400$$

The brokerage companies registered at the NSE was employed to select the investors for the sample. The investors were conveniently selected as those who visits or contacts the brokerage firm during the period of study. Brokerage firms were requested to call willing clients to participate.

3.5. Data Collection

In the research, first hand and published data were both be used. Structured questionnaires were used to gather primary data. There were three sections in the questionnaire. Demographic information on the respondents is provided in Section A, including the informants' gender, age, education level, and income. The ostrich effect is covered under Section B's questions on physical avoidance, carelessness, and skewed information interpretation, forgetfulness, and ignoring presented information. The investors, who were chosen at random self-administered the surveys. In order to give everyone sufficient time to respond to the questions, they were sent and collected after a week.

Regarding share prices and the NASI index, secondary data was gathered from the NSE. For one year (2021), share prices were collected to provide investors time to find pertinent answers to their inquiries.

3.6 Regression Diagnostics

The analysis of multiple regressions was used in the study. This calls for data that is routinely distributed. Several tests were conducted. Normality test involves assessing the nature of data, as it is a requirement in parametric tests. It is therefore a statistical requirement for the nature of data to be used in regression analysis. It's a confirmation on whether the data is normally distributed (Das, & Imon, 2016). Normal distribution of data is needed to carry out regression tests. The testing

of normality was undertaken using Shapiro-wilk Test. In this test, the statistics of less than 0.05 would be a suggestion of abnormality of the data. The Variance Inflation Factors were utilized in order to analyze the multicollinearity. VIF should be no more than a value of 10. The lower VIF values of the parameters indicate no collinearity issues.

Heteroscedasticity tests assess the assumptions of independence of parameters to each other and the variance of the error term should not change. The absence would mean that there is a problem of heteroscedasticity. In a linear regression, the assumption of homoscedasticity means same variance and is central to linear regression models. The data should therefore be homoscedastic (Yang, Tu, & Chen, 2019). This study used Koenker test, whereby values above 0.05 are acceptable. Autocorrelation test on the other hand was done using Durbin-Watson test in ascertaining whether the adjacent parameters have a relationship. When there is no autocorrelation, the indication is a Durbin-Watson statistic close to 2. Finally, linearity test adopted in testing the linear correlation between the measured and explanatory parameters, about the linear regression models (Chiesa, Manohar, & Shinkar, 2020). The objective is to assess whether the parameters under study are linear or non-linear, with values below 0.05 considered to be accepted.

3.7 Data Analysis

The information was examined through social science statistical software. Making inferential and descriptive statistics was the initial step in this process. The magnitude of ostrich effect was assessed using mean and standard deviation as descriptive. The impact of ostrich effect on on portfolio returns among Nairobi Securities Exchange-listed individual investors was determined using multiple regression tests. The results of the regression analysis conducted are detailed below:

$$\mathbf{Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon}$$

Where:

Y = Portfolio Returns

$\mathbf{X_1}$ = Ostrich Effect

$\mathbf{X_2}$ = Age of the Investor

$\mathbf{X_3}$ = Gender of the Investor

$\mathbf{X_4}$ = Level of Education

$\mathbf{X_5}$ = Income Level

e = Error term

β_1, β_2, β_3, β_2 β_4 & β_5 = Are the regression coefficient

3.8 Test of Significance

The research utilized T-test and F-test. The t-test assisted in identifying importance of each researched parameter. On the other hand, the F-test supported the determination of whether the regression model is appropriate. Pearson correlation coefficient (R) and adjusted R^2 were also determined. The Pearson correlation coefficient was employed to determine the nature of correlations while adjusted R^2 helped in establishing how the percentage change in portfolio returns is dependent on varying mean scores of ostrich effect.

3.9 Operationalization of Study Variables

Portfolio returns acted as the independent variable in this study while mean score of ostrich effect serves as the dependent variable. The control variables are the age of investors, gender of the investor, income and educational level of the individual. The measurements of the parameters are shown in Table 1:

Table 1: Operationalization of Study Variables

Variable	Measures	Empirical Study Adapted from	Measurement Scale and Questionnaire items
Independent Variable Ostrich Effect	▪ Physical avoidance, inattention. ▪ Biased interpretation of information. ▪ Forgetting. ▪ Ignoring information presented.	Chang and Young (2019)	Interval scale-5 point Likert scales. Section B Part A - D
Control Variables		Joseph (2015)	Interval scale-Likert scale Section A Question 1-4
Age of the Investor	Category of Ages		
Gender of the Investor	Male and Female		
Level of Education	Secondary Education Certificate Diploma Degree Masters Others		
Income Level	Category of Incomes		

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Dependent Variable Portfolio Returns	$S_P = \frac{E(R_P) - R_f}{\sigma(R_P)}$	Nyamute, Lishenga and Oloko (2015)	Data Collection Sheet

Source: Researcher (2023)

4. Data Analysis, Findings and Discussion

This section presents the response rate, the descriptive statics, correlation analysis, inferential statistics and discussion of findings.

4.1Response Rate

Based on the questionnaires distributed, the study sought 400 correspondents, of which 250 responded. This equates to a response rate of 62.5%. Sekaran (2003) posits that a response rate of 30% is deemed satisfactory. The response rate as given in Figure 2 was thus adequate to determine the dependability and consistency of the study's results.

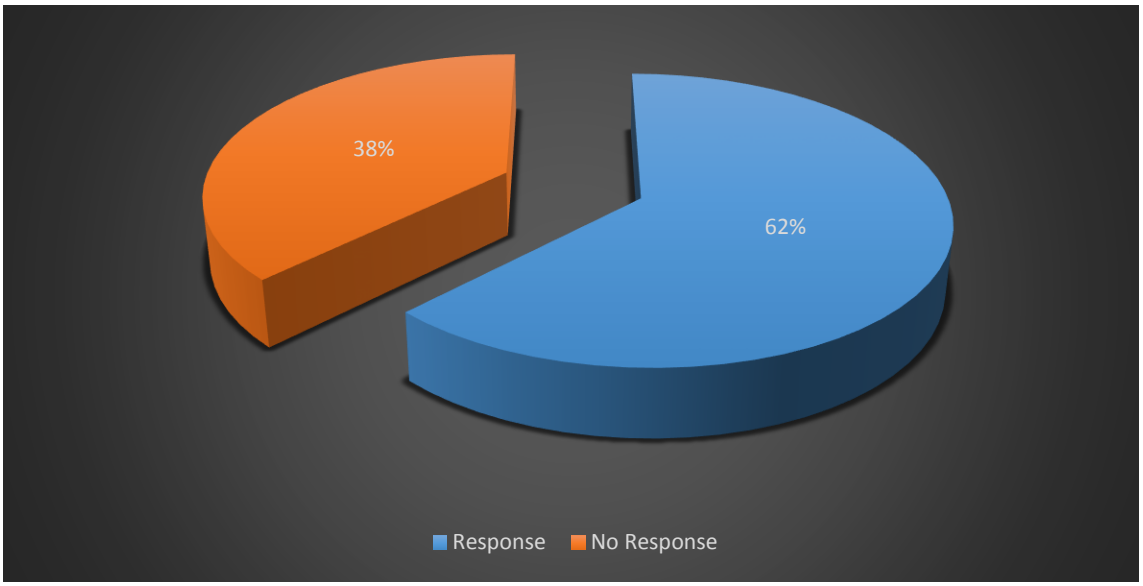

Figure 2: Response Rate

4.2 Demographics of the Individual Investors

The gender of the respondents, their ages, the level of education they had received, as well as their levels of income, were the primary focuses of the study.

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4.2.1 Gender of the Respondents

According to the data, the gender breakdown of the respondents was as follows: 68% male and 32% female. The gender distribution of the respondents implied that there were more men investors than women at the NSE for the period under research.

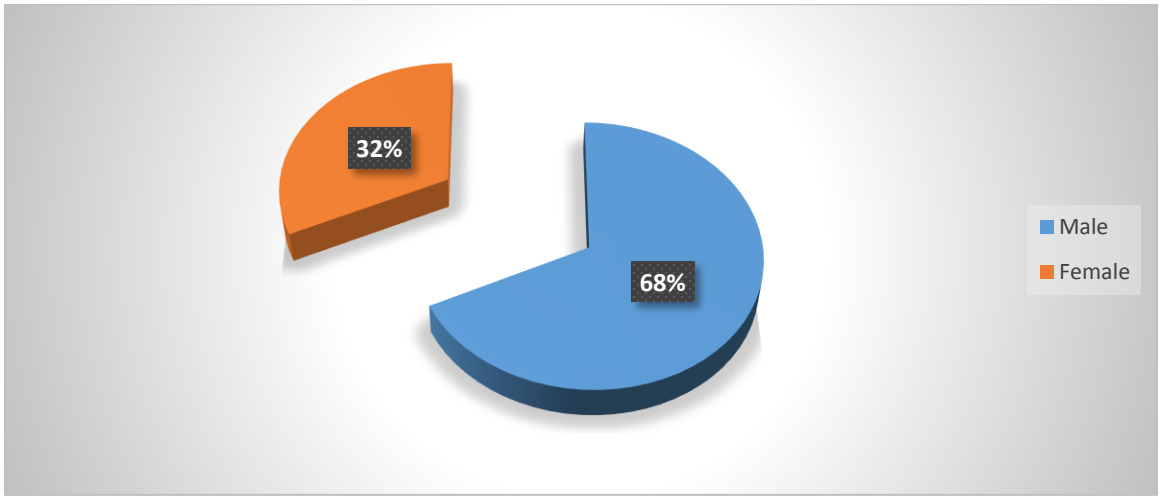

Figure 3: Gender of the Respondents

4.2.2 Age of the Respondents

According to the findings of the study, which are presented in Figure 4, the majority of the respondents, comprising 49% of the total, were between the ages of 32 and 38 years old. The next largest group consisted of respondents aged between 39 and 45 years old, followed by respondents aged between 25 and 31 years old, who made up 21% and 15% of the total, respectively. The least representation was the age group of 45 years and above and those aged between 18-24 years, each with 9% and 6% respectively.

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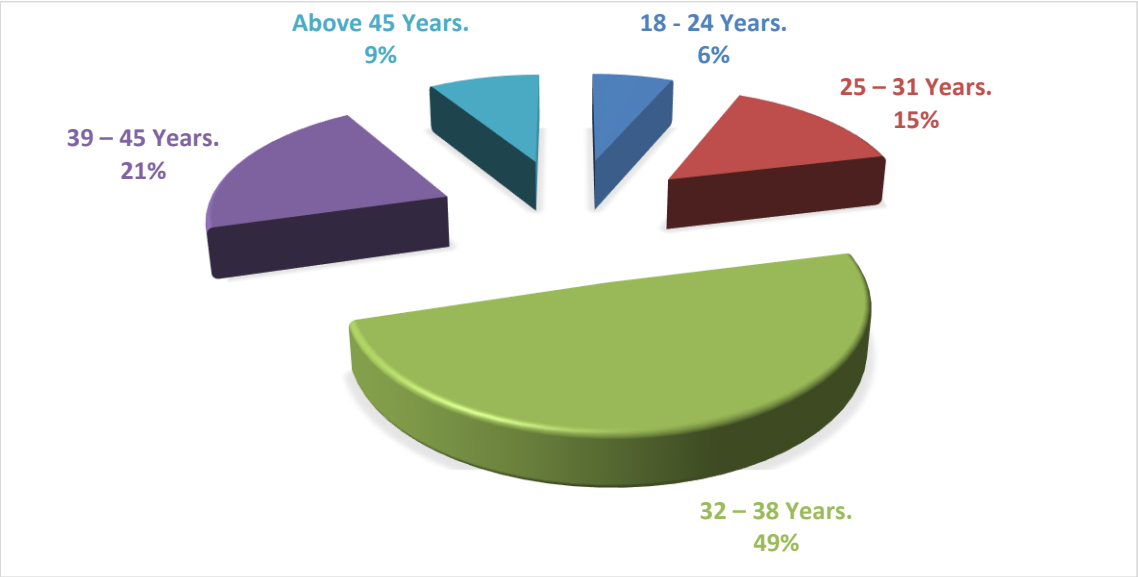

Figure 4: Age of the Respondents

4.2.3 Education Level for Respondents

The purpose of the study was to determine the average degree of education held by individual investors. The levels considered included secondary education, certificate, diploma, degree, masters and any other relevant qualification. Figure 5 show that majority of the investors being 35.6% had a degree, while 29.2% had a diploma, with 18.4% having a master's degree. Further 11.2% had a certificate qualification, while only 5.6% had secondary education.

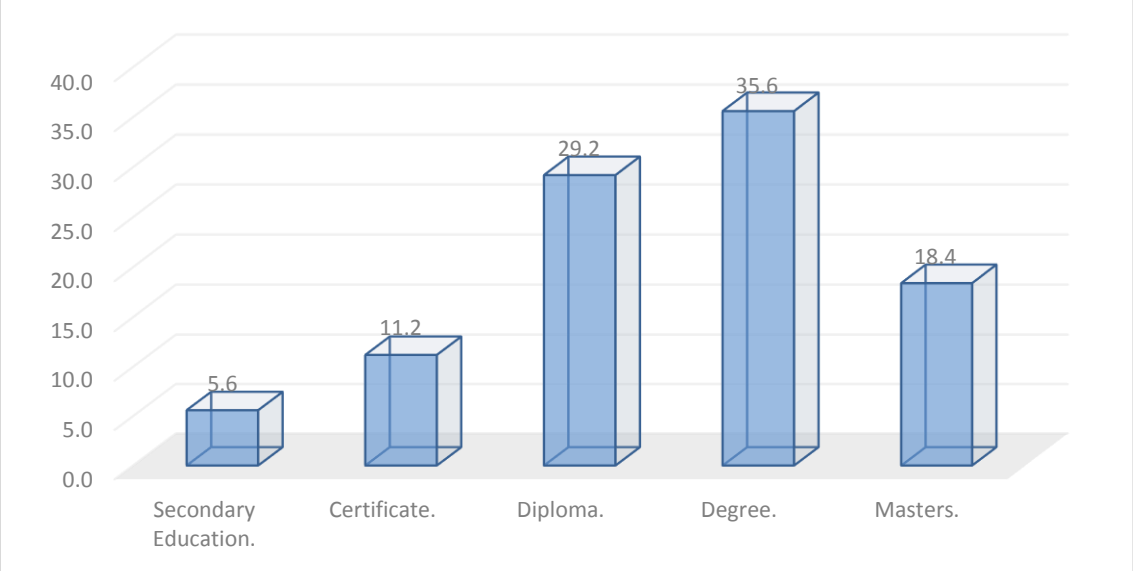

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Figure 5: Education Level of Respondents

4.2.3 Income Level of Respondents

According to the findings of the survey, which are presented in Figure 6, the vast majority of the responses having an income range of Kshs 41,000 – 60,000 formed 24% of the investors; followed by a salary range of Kshs 61,000-80,000 forming 23% and then the salary range of Kshs 81,000-100,000 formed 20% of the investors. Further, investors within the income range Kshs 21,000-40,000 made up 17%, while the salary range of Kshs 0 – 20,000 formed 10% and the least representation was those with the salary range of above Kshs 100,000, making up 6% of the investors.

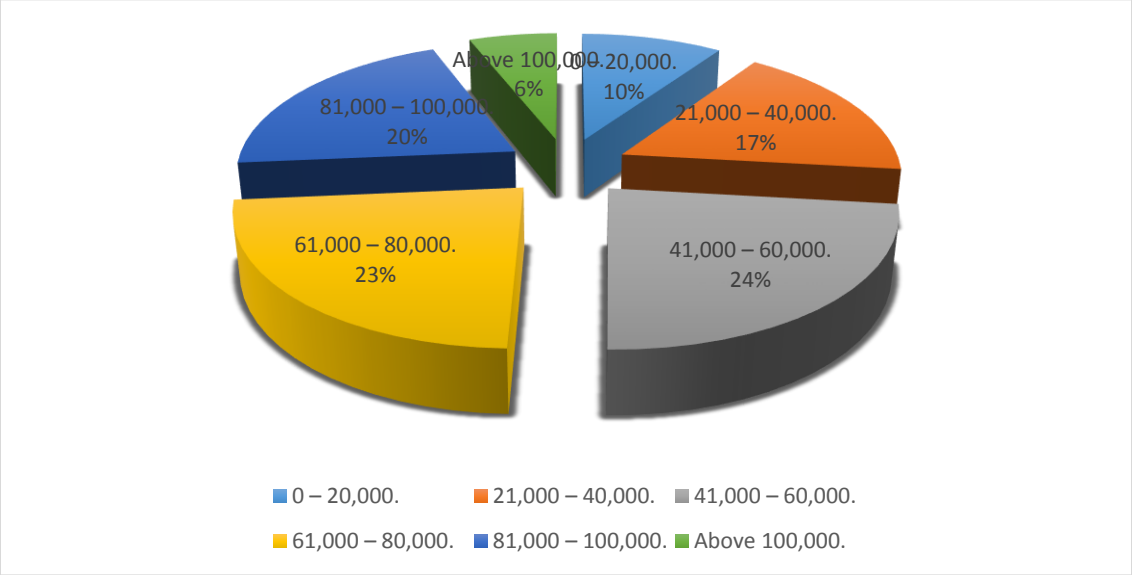

Figure 6: Income Level of Respondents

4.3 Descriptive Statistics on Ostrich Effect

The respondents were presented with variables associated to the ostrich effect based on physical avoidance, inattention, biased interpretation of information and behavior of forgetting and ignoring information presented. It was requested of the responders to indicate their level of agreement with each of the statements regarding the ostrich effect on a scale of 1 to 5, where 1 is for "strongly agree," 2 is for "agree," 3 is for "neutral," 4 is for "disagree," and 5 is for "strongly disagree." The findings were as explained below:

4.3.1 Physical Avoidance

The results, which can be found in Table 4, show that on average, the respondents agreed that they practice physical avoidance of bad news given a mean of M=2.228: SD = 1.08588 overall. The results show that most exhibited physical avoidance trait was avoidance of negative feedback that could help them monitor my investment goal progress, avoidance of reading business news on newspapers and business bulletins with investment information and observance of the market more when am holding a winning stock than when am holding a losing stock, given by M=2.3240: SD=1.07314; M=2.2600: SD=1.10875 and M=2.2360: SD=1.08860 respectively. The least exhibited behaviour included checking any portfolio during high seasons more than low seasons and avoiding risky situations on market information, represented by M=2.1800:SD=1.11741 and M=2.1400:SD=1.04151. In addition, a positive skewness of.738 indicates that the data were positively skewed to the right, and a negative kurtosis score of -.0718 indicates that, on average, the data were platykurtic. This means that, in comparison to a normal distribution, it has a flatter peak and thinner tails.

Table 2: Descriptive Statistics on Physical Avoidance

Sub Variables	N	Mean	Std. Deviation	Skewness	Kurtosis
I avoid risky situations on market information.	250	2.1400	1.04151	.899	.385
I check any portfolio during high seasons more than low seasons.	250	2.1800	1.11741	.841	.040
When I own a winning stock, I pay more attention to the market than when I own a losing stock.	250	2.2360	1.08860	.705	-.197
I often avoid negative feedback that could help them monitor my investment goal progress.	250	2.3240	1.07314	.582	-.297
I avoid reading business news on newspapers and business bulletins with investment information.	250	2.2600	1.10875	.665	-.290
Average	**250**	**2.228**	**1.08588**	**.738**	**-.0718**

4.3.2 Inattention

The data presented in Table 4.2 suggests that in general individual investors agreed that they exhibited inattention given M=2.2976; S.D=1.07703. The mostly exhibited behavior was inability to pay proper attention to information readily available information, followed by the behaviour of not watching news about the investment market performance during declining periods and then ignoring of some financial information that might be negative, given by M=2.4360: S.D=1.08933; M=2.3440: S.D=1.03438 and M=2.3240: S.D=1.20367 respectively. The other exhibited inattention behaviors included ignoring the market updates on losing stocks and trying not to inquire on the status of my financial investment given by M=2.2600: SD=1.04151 and M=2.1240: SD=1.01625 respectively. The positive skewness of 0.6592 implies that the information was favoring the right side of the ledger significantly while the negative kurtosis value of -0.147 indicate that averagely the data when compared to a normal distribution, a flatter peak and narrower tails.

Table 3: Inattention

Sub Variables	N	Mean	Std. Deviation	Skewness	Kurtosis
I am ignoring some financial information out of concern that it might go against what I believe and what I expect.	250	2.3240	1.20367	.622	-.563
I ignore the market updates on my losing stocks.	250	2.2600	1.04151	.645	-.179
I try not to inquire on the status of my financial investment.	250	2.1240	1.01625	.952	.554
I do not pay proper attention to information, after it has already become readily available.	250	2.4360	1.08933	.532	-.335
I do not watch news about the investment market performance, during declining periods.	250	2.3440	1.03438	.545	-.210

Average	**250**	**2.2976**	**1.07703**	**.6592**	**-.147**

4.3.3 Biased Interpretation of Information

According to the results presented in Table 4.3, the majority of respondents were in agreement that they exhibited biased interpretation of information as given by M=2.316; SD=1.04593. This was exhibited mostly through biases such as interpretation of investment information based on prior beliefs, followed by ignoring the unpleasant implications of information about investment and then delaying knowledge that could be valuable in making investment decisions with negative consequences given by M=2.3720:SD=1.04594; M=2.3640:SD=1.09007 and M=2.3480:SD=1.08425 respectively. The least exhibited behaviors included tracking the value of the portfolio when market values are rising and excluding any investment information that conflicts with my beliefs, given by M=2.2767: SD=1.00173 and M=2.2400: SD=.98944 accordingly. The data had a positive skewness of .569, indicating a rightward skew. Additionally, the negative kurtosis value of -.222 suggests that, on average, the data had a flatter peak and thinner tails compared to a normal distribution.

Table 4: Biased Interpretation of Information

Sub Variables	N	Mean	Std. Deviation	Skewness	Kurtosis
I track the value of the portfolio when market values are rising.	250	2.2800	1.01475	.671	.067
I exclude any investment information that conflicts with my beliefs.	250	2.2160	.99464	.666	.043
I delay knowledge that could be valuable in making investment decisions with negative consequences.	250	2.3480	1.08425	.492	-.432
I ignore the unpleasant implications of information about my investment.	250	2.3640	1.09007	.512	-.464
I interpret investment information based on prior beliefs.	250	2.3720	1.04594	.503	-.326
Average	**250**	**2.316**	**1.04593**	**.569**	**-.222**

4.3.4 Forgetting and Ignoring Information Presented

The researcher sought to examine possible behaviour of forgetting and ignoring information presented, as an exhibit of ostrich effect. The results, as presented in Table 4.4, reveal that the participants, on average, concurred that they have a tendency to overlook and neglect the information that was provided, especially when dealing with declining investments. This was given by M=2.268: SD=1.04814. Specifically, the most exhibited behaviour was that the investors do not do research on poor performing portfolio, followed by rejecting new evidence on declining investment performance and then ignoring the market update on my loosing stock, given by M=2.3360:SD=1.10089; M=2.3280: SD=1.08865 and M=2.2400: SD=.1.00521 respectively. The least exhibited behaviors included ignoring negative investment feedback and criticism and making different investment decisions when someone is watching me, given by M=2.2320: SD=1.08865 and M=2.2040: SD=1.01909 respectively. The data were positively skewed to the right, as indicated by the average positive skewness of 0.694, and negatively kurtosis of -.002. This suggests that, on average, the data followed a normal distribution with flattened peaks and thinner tails.

Table 5: Forgetting and Ignoring Information Presented

	N	Mean	Std. Deviation	Skewness	Kurtosis
I ignore the market update on my loosing stock.	250	2.2400	1.00521	.747	.245
I do not do research on my poor performing portfolio.	250	2.3360	1.10089	.614	-.296
I tend to ignore negative investment feedback and criticism.	250	2.2320	1.02684	.733	.103
I reject new evidence on declining investment performance.	250	2.3280	1.08865	.580	-.312
I make different investment decisions when someone is watching me.	250	2.2040	1.01909	.798	.251
Average	**250**	**2.268**	**1.04814**	**.694**	**-.002**

4.4 Descriptive Statistics on Portfolio Returns

Portfolio returns was measured using sharpe ratio. Table 4.5 show that the mean of portfolio returns was 4.2521; SD=14.84953. A positive skewness value of 3.312 indicates that the right tail of the distribution is elongated or thicker; consequently, the mode was smaller than the mean and median. The positive kurtosis of 19.542 indicates a distribution where more numbers are located in the extreme ends of the distribution instead of around the mean.

Table 6: Portfolio Returns

	N	Mean	Std. Deviation	Skewness	Kurtosis
Sharpe Ratio	250	4.2521	14.84953	3.312	19.542
Valid N	250				

4.5 Regression Analysis

Researchers examined how the ostrich effect affects portfolio performance for Nairobi Securities Exchange, Kenya, individual investors using multiple regression analysis.

4.5.1 Model Summary

Table 4.13 posit that adjusted R^2 of .225, indicate that 22.5% of variations in portfolio returns were because of ostrich effect related biases. The implication is that a significant set of factors, making up 77.5% influence portfolio returns are were not studied in the current research. The standard error of estimation of 13.06904 show that the model best fit the data, which indicates effective model's applicability.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.491[a]	.241	.225	13.06904

a. Predictors: (Constant), Income level of the respondents , OE, Gender of the Respondent:, Age of the Respondents, Education level of the respondents

b. Dependent Variable: Sharpe Ratio

4.5.2 Analysis of Variance

Table 4.14 shows that ostrich effect significantly affect portfolio returns since p<0.05. This means that investment biases caused by ostrich effect lead to a significant variation in portfolio returns among individual investors at NSE. The F-statistic of 15.494 indicates that the degree of dissimilarity between sample means is lower than the degree of dissimilarity within samples. It implies that variations in predictor variables reliably and significantly cause portfolio returns variations.

Table 7: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13231.518	5	2646.304	15.494	.000[b]
	Residual	41675.121	244	170.800		
	Total	54906.639	249			

a. Dependent Variable: Sharpe Ratio

b. Predictors: (Constant), Income level of the respondents , OE, Gender of the Respondent: Age and education of respondents

4.5.3 Regression Coefficient

According to Table 4.15, the beta of -24.656 shows the regression intercept, indicating that portfolio return takes the value of -24.656 if biases caused by ostrich effect takes value 0. The negative value of the slope imply that an increase in behavioural biases caused by ostrich effect lead to reduced portfolio returns among individual investors listed at NSE, Kenya. The beta values of ostrich effect of 14.184 is the amount by which portfolio returns varies with one unit variation in ostrich effect. The variable also significantly affect portfolio returns given the p-value of .000. The study also found out that the beta value was 2.365 for gender of the respondents, which was insignificant given p-value of .195. It implies that portfolio returns varies with 2.365, due to a unit variation in gender distribution of those who responded. The ages of those who responded had a beta value of .303, implying that portfolio returns varies with .303, due to a unit variation in age of the respondents.

The study also determined the educational attainment of the participants was statistically insignificant on influencing portfolio returns, given p-value of .060. Education level had a beta value of -1.497, implying that portfolio returns varies with -1.497, due to a unit variation in education level of the respondents. Lastly, income level had a beta value of -1.001, indicating the amount by which portfolio returns varies with one unit variation in income level. It however insignificantly affected portfolio returns given the p-value of .101. The implication was that ostrich effect significantly affect portfolio returns. Gender, age, education level and income level however do not have a significant effect on portfolio returns among individual investors listed at NSE, Kenya.

The regression model to be used can therefore be summarized as follows:
$Y = -24.656 + 14.184X_1 + .303X_2 + 2.365X_3 - 1.497X_4 - 1.001X_5 + \varepsilon;$ Where Y = Portfolio Returns, X_1= Ostrich Effect, X_2= Age of the Investor, X_3 = Gender of the Investor, X_4 = Level of Education and X5 = Income Level and ε = Error term.

Table 8: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-24.656	6.885		-3.581	.000
	Ostrich Effect	14.184	1.732	.459	8.192	.000
	Gender of the Respondent	2.365	1.819	.074	1.300	.195
	Age of the Respondents	.303	.859	.020	.352	.725
	Education Level	-1.497	.792	-.110	-1.892	.060
	Income Level	-1.001	.609	-.094	-1.644	.101

a. Dependent Variable: Sharpe Ratio

Source: Research Data (2023)

4.6 Discussion of Findings

The research was meant to examine the influence of ostrich effect on portfolio returns among individual investors listed at NSE, Kenya. The study found out that ostrich effect significantly

affect portfolio returns since p = 0.000. This meant that investment biases caused by ostrich effect led to a significant variation in portfolio returns among individual investors at NSE. The F-statistic of 15.494 also indicated that ostrich effect reliably and significantly caused variations in the portfolio returns. The adjusted R^2 of .225 indicated that 22.5% of variations in portfolio returns were because of ostrich effect related biases, and therefore a significant set of factors, making up 77.5% that influences portfolio returns, were not studied in the current research. The results matched up well with those of Hilchey and Soman (2023) who concluded that information concerning losses loses importance, especially when people are powerless to change payoffs.

The study also found out that on average, the respondents practiced physical avoidance of bad news and exhibited inattention given by M=2.228: SD = 1.08588 and M=2.2976; S.D=1.07703 respectively. It was also established that the respondents averagely exhibited biased interpretation of information as given by M=2.316; SD=1.04593, as well tending to forget and ignore information presented, especially when dealing with declining investments, given by M=2.268: SD=1.04814. The findings were consistent with the works of Kimeu, Onyango, and Rotich (2016) who concluded that behavioral elements including prospect, herding, heuristic, and rationality have a beneficial influence on investment decisions in the NSE.

The study also determined that there was a somewhat positive link between the ostrich effect and portfolio returns as evaluated by Sharpe Ratio, with the value of r equaling.463 and p equaling 0.000. This finding was supported by statistical evidence. As evidenced by r =.101 and p =.112, it was discovered that the gender of the respondents had a low positive association with Sharpe Ratio, however this correlation was not significant. The research also found that the respondents' ages and the Sharpe Ratio had a positive link, but it was very weak and not statistically significant given by r =.024; p=.710. Finally education level and income level of respondents had a weak and negative insignificant correlation given by r =-.145; p=.022 and r =-.049; p=.445 respectively.

The regression coefficients also established that the beta of -24.656 shows the regression intercept, indicating that portfolio return takes the value of -24.656 if biases caused by ostrich effect takes

value 0. The negative value of the slope imply that an increase in behavioural biases caused by ostrich effect lead to reduced portfolio returns among personal investors listed at NSE, Kenya. The beta values of ostrich effect of 14.184 is the amount by which portfolio returns varies with one unit variation in ostrich effect. The variable also significantly affect portfolio returns given the p-value of .000. The study also found out that the beta value was 2.365 for gender of the respondents, which was insignificant given p-value of .195. It implies that portfolio returns varies with 2.365, due to a unit variation in gender distribution of those who responded. The ages of those who responded had a beta value of .303, implying that portfolio returns varies with .303, due to a unit variation in the ages of those who responded.

The study also found that the respondents' average degree of education did not have a statistically significant impact on portfolio returns, given p-value of .060. Education level had a beta value of -1.497, implying that portfolio returns varies with -1.497, due to a unit variation in education level of the respondents. Lastly, income level had a beta value of -1.001, indicating the amount by which portfolio returns varies with one unit variation in income level. It however insignificantly affected portfolio returns given the p-value of 0.047. The implication was that ostrich effect significantly affect portfolio returns. Gender, age, education level and income level however do not have a significant effect on portfolio returns among private investors who are registered with the Nairobi Securities Exchange, Kenya. The findings were however inconsistent with those of Shah (2023) who established that gender plays a notable role in shaping investment decisions, with distinct patterns emerging between male and female investors. The study by Socha (2018) also had a contrary opinion, indicating that age and monthly income hold a statistically significant positive relationship with the total amount invested by individuals.

5. Summary, Conclusion and Recommendations

5.1 Conclusion of the Study

The study concluded that ostrich effect influence to a substantial degree portfolio returns. Further, it was concluded that a small percentage of variations in portfolio returns were caused by ostrich effect related biases, with a significant set of factors that influences portfolio returns, were not studied in the current research. The assertion therefore was that ostrich effect significantly causes variations in portfolio returns among individual investors listed at NSE, Kenya. The implication

was that when investor's exhibit increased biases due to ostrich effect, portfolio returns significantly change. The research also came to the conclusion that, on average, the respondents displayed signs of the ostrich effect to a moderate degree. These signs included physical avoidance, inattention, skewed interpretation of information, forgetting and ignoring of material that was presented, and so on. In addition, the findings of the research indicated that an increase in behavioral biases brought about by the ostrich effect significantly contributed to a decline in the portfolio returns of individual investors listed on the Nairobi Securities Exchange in Kenya.

Further conclusion indicate that gender, age, educational level, and income level had no significant impact on the returns of the portfolios. The implication was that investment biases do not arise in relation to differences in either gender, age, educational level, or income level. Further, gender and age of the respondents had a weak and insignificant positive correlation with portfolio returns. This implied that as investors progress in age, they make more investment decisions, while there were gender variations with positive variations in portfolio returns. Education and income level of respondents however had a weak and negative insignificant correlation. The conclusion on education and income level imply that increased level of education as well as income level do not lead to better investment decision, in terms of portfolio holdings.

5.2 Recommendations of the Study

Based on the research results, individual investors should be urged to avoid the effects of the ostrich effect and, instead, they should focus on fundamental examination of investments to make judgments. Because of this, they will be able to receive market return, which will allow them to circumvent the detrimental effects of biases caused by the ostrich effect. In addition, private investors should avoid the temptation to take on additional risk simply because historical returns have been favorable, and they should avoid the temptation to avoid risk simply because historical returns have been unfavorable. If an individual investor depends on the ostrich effect rather than examining the investment options, there is a possibility that the individual investor will end up losing money.

The study also recommended that awareness should be created among the highly educated class on issues of portfolio investment. This is because the level of education was found to have a

negative correlation with portfolio returns. The study also recommends that awareness regarding portfolio investment should also be made among different age groups. Ultimately, the report suggests that individual investors ought to keep their eyes on the big picture, regarding the long-term aims as well as the potential benefits that may be obtained if they did not avoid the problem. This would entail directing the attention of individual investors toward the potential benefits that could be gained from their own acknowledgment of their circumstances, with the goal of reminding them of the more favorable financial outcomes they are capable of achieving.

This study focused on only one type of bias that is, ostrich effect. In future, other market anomalies could be included to see the impact on investment decisions of investors in listed companies in Kenya. Other cognitive biases can also be used to determine portfolio returns in future. The researchers would also be interested in gaining a better grasp of which sector of the market is most susceptible to the prejudice caused by the ostrich effect. This gap can be further narrowed by conducting additional research that investigates the behavioral elements that influence portfolio results based on investment segment globe. The current study did not investigate these issues.

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