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AN EMPIRICAL STUDY OF THE EFFECTS OF COGNITIVE BIASES ON STOCK MARKET RETURNS IN NORTH-EASTERN NIGERIA

BY

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Abstract
Investment return volatility remains a major challenge confronting investors in the Nigerian financial market, significantly influencing investor behavior within the stock market. This study aims to investigate the effects of cognitive biases on stock market returns in north-eastern Nigeria. Employing a cross-sectional survey design, data were collected from individual investors in north eastern part of the country actively participating in the Nigerian financial market. The study population comprises all investors in the north east trading in the market, from which a sample of 92 respondents was purposively drawn. Descriptive and inferential statistical methods, including simple and multiple regression analyses, were used to test the stated hypotheses. Findings indicate that representativeness bias has a significant impact on stock market returns, demonstrated by a strong positive correlation ($R = 0.781$) and a high coefficient of determination ($R^2 = 0.771$), indicating that 77.1% of the variation in stock returns is explained by this bias. The result is statistically significant ($p = 0.001$), leading to the rejection of the null hypothesis ($H0_1$). Similarly, regret aversion bias also shows a significant influence on stock returns, with a moderate positive correlation ($R = 0.651$) and an R^2 value of 0.648, signifying that 64.8% of the variation is attributable to this bias. Its statistical significance ($p = 0.010$) supports the rejection of the second null hypothesis ($H0_2$). The study concludes that both representativeness and regret aversion biases have a significant impact on stock market returns in Nigeria. It recommends that investors receive targeted education and training in behavioral finance to better identify and manage these cognitive biases, thereby promoting more rational investment decisions. Furthermore, policymakers are encouraged to introduce measures that enhance market transparency and reduce information asymmetry to support informed investor behavior.
Key words: Representative bias, Regret aversion bias, stock market return

Introduction

Stock market returns serve as vital indicators of both economic performance and investor sentiment, reflecting a nation's economic diversity and its reliance on various commodities. In Nigeria, the stock market is represented by the Nigerian Exchange Limited (NGX), which stands among the leading stock markets in Africa. Formerly known as the Nigerian Stock Exchange (NSE), the NGX was initially established on September 15, 1960, as the Lagos Stock Exchange (Emmanuel, 2020). Over the years, the NGX has witnessed substantial growth in market activities. The number of listed securities has increased from just 3 in 1961 to 163 by 2020 (CBN, 2023). Likewise, the number and value of deals executed on the exchange surged significantly from 39,103 in 1990 to 1,155,019 in 2023. In the same period, the NGX All-Share Index reached 74,773.77 points and market capitalization rose to ₦46.108 billion in 2023, with the All-Share Index recording a 45.9% annual increase (CBN, 2023). The NGX provides the foundational

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infrastructure essential for capital formation, enabling businesses and governments to raise funds through equity ownership by shareholders, ultimately contributing to broader economic development (Nkwede, 2020). Stock market returns represent the total gain or loss on an investment over a given period, and investors typically acquire shares with the expectation of receiving returns in the form of dividend payouts or capital gains from trading (Marozva, 2020). Investor behavior is shaped by numerous factors, including aspirations for quick wealth, dividend expectations, success stories of other investors, previous investment experiences, and company performance, all of which influence their investment decisions and anticipated returns (Ahmed & Roberts, 2023).

Investment decision making is an intricate process that involves analyzing market trend (stock price, returns on investment, companies' performance) and following different rules in the financial market (Permata & Mulyani, 2022). Investors make investments in order to get higher return, buying an asset for future and adequate retirement saving. Therefore, individual investors normally study it investment among other desires, objectives, and purposes while making investment for future returns. The efficient market theory is based on the notions that investors are rational decision-makers on their investment portfolio for future returns. Perfect information exists in the market, assets are traded at their intrinsic values and that share values always reflect information that is readily available on the financial market due to the market's constant efficiency. Therefore, based on these assumptions, no investors can outperform the market or sell shares at the detriment of others (Fama, 1970; Laine, 2021). Behavioral economists and financial analysts, including Kahneman and Tversky (1979), has promoted the idea that investors don't always make the best judgments. Since decision is a choice that investors will make to gather opinions about an asset in the hope of making a higher return in the future. Investors' actions when making investment decisions sometime is irrational because the attitudes of investors can result in biases, sentiment or deviations that influence investment decision making with regard to stock returns. The influence of behavioral and cognitive biases, such as regret aversion and representative bias among others bias play a significance role in Nigeria financial market. Investors make judgments regarding present or future investments based on prior events. Investors often assume that past performance guarantees future results, leading to poor diversification. (Baker & Wurgler, 2020). In Nigeria, representative bias is evident in the over-reliance on the banking and oil sectors. Many Nigerian investors assume these sectors will always outperform, given their historical dominance in the market. However, the 2014 oil price crash revealed the dangers of such assumptions, as heavily oil-dependent stocks experienced sharp declines in returns on investment (Khan et al, 2021).

Investor's dislike regretting from losses in stock market as a result of irrational decision. The regret resulting from a loss owing to an abnormal decision is greater than the regret resulting from a loss owing to a normal decision. In Nigeria, regret aversion bias is common among retail investors who avoid high-risk investments despite potential high returns. Many Nigerians investors refrained from investing in fintech startups during their early stages, missing out on significant gains when these companies scaled up. This bias often keeps investors overly conservative, limiting their portfolio growth (Akinkoye & Bankole, 2020).

Fluctuation in return on investment has been the main issues facing investors in the Nigerian financial market, this fluctuation significantly affects investor behavior in the Nigeria's stock market. High volatility often leads to market uncertainty which makes it difficult to predict future returns. Investors tend to react either by pulling out their funds during periods of sharp declines or increased their investment when markets appear to be rebounding. This reaction as a result of high volatility led to overtrading, causing further market instability and reduced long-term gains or returns. These fluctuations also affect the risk appetite of both local and foreign investors

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because returns are unpredictable, risk-averse investors might prefer to divest from equities and shift towards safer asset classes like fixed-income securities like bonds or real estate (Andrew & Onerhime, 2024). Foreign investors, in particular, are deterred by currency devaluation and inflationary pressures, which erode the value of their returns when repatriating profits. The recent depreciation of the Naira and high inflation rates of over 34.6% in November 2024 have compounded these risks, causing significant outflows from the stock market as investors seek stability (Andrew & Onerhime, 2024). Investors invest in companies' securities that perform well and have a good return on investment, which normally indicates that the company is successful in using its resources to generate high returns. Conversely, investors typically avoid investing in companies' securities with low or negative returns, as one of the main reasons for investing is to achieve competitive returns (Emmanuel, 2020). Stock market returns are affected by various factors, including macroeconomic conditions, company-specific factors, investor sentiment, and market trends. These factors have led to fluctuations in shareholder returns in the Nigeria's financial markets, shaking investor confidence. A decrease in returns makes investors wary and hesitant to buy or sell shares, causing market slumps, while an increase in returns triggers a buying frenzy, driving share prices to unsustainable levels. These fluctuations disrupt rational investment decisions, causing investors to deviate from long-term strategies (Andrew & Onerhime, 2024).

Furthermore, investors tend to underweight recent events and overweight historical ones, believing that past performance is the best predictor of future performance. This representative bias often distorts investment behavior in Nigeria. The assumption of investors that banking stocks will always outperform due to their historical dominance. However, during the 2016 economic recession, this sector underperformed significantly, leading to substantial losses for investors who relied on outdated assumptions. The overemphasis on oil stocks is another manifestation of representative bias. Many Nigerian investors associate the oil sector with guaranteed high returns due to its historical profitability. Yet, the global oil price crash in 2014 demonstrated the dangers of such assumptions, as heavily oil-reliant stocks suffered massive declines (Kehinde, 2023). In Nigeria, some investors have rushed to invest in stocks of sectors that recently saw growth, such as fintech and telecommunications, under the false assumption that past performance guarantees future gains. When these stocks fail to perform as expected, investors experience significant losses, highlighting the dangers of relying on trends rather than comprehensive analysis (Ahmad & Wu, 2022; Ibrahim & Sanusi, 2023).

The fear of regret also affects Nigerian investors by causing them to avoid decision-making due to a fear of future regret. When investors fear making the wrong investment choice, they may avoid taking any action, leading to missed opportunities (Oduah, 2024). For instance, after the 2008 financial crisis, many Nigerian investors refrained from re-entering the market, missing out on the recovery in the financial market in subsequent years (Okeke & Adekunle, 2023). This bias also influences IPO participation. Fear of picking the wrong IPO often leads Nigerian investors to adopt a wait-and-see approach, as seen during the MTN Nigeria Communications IPO in 2019. While early investors enjoyed significant gains, those influenced by regret aversion missed out on this opportunity (Akinkoye & Bankole, 2020; Ebenezer & Oluwaseun, 2023). The studies on investors sentiment vary due to various proxies and methodologies used by the researchers to quantify investor sentiment. Most of these studies conducted in other climes revealed mixed findings. Some of these studies includes Baker and Wurgler (2006), in U.S. In Indonesia these studies include Muhammad and Dajono (2024). Bosede and Rufu (2024) in South Africa. These studies among others found a substantial positive and negative relationships between sentiments among investors and stock market returns. In Nigeria, these studies include Ebenezer and Oluwaseun (2023) also revealed a strong and significant correlation between investor sentiment and stock market returns and while other studies revealed negative correlation. These studies

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among others also revealed that there is a significant relationship between investors sentiment, interest rate and stock market returns. Research has yet to fully explore investors' perceptions of the effect of interest rates on their return on investment and sentiment in Nigeria financial market.

Furthermore, most of these studies used proxies to measure investors' sentiment and stock market returns based on secondary data developed by Baker and Wurgler (2006) as well as Baker and Wurgler (2007). These proxies cannot really measure the perception of investors in the Nigerian financial market. By administering questionnaires to investors, researchers will examine how these biases such regret aversion and representative bias shape investor sentiment and market returns. Therefore, it is against this background that this study intents to fill this gap. By using primary data to examines the effect of representative bias and regret aversion bias of investors on stock market returns in the Nigerian financial market. The study the questions of how does representative bias and regret aversion bias significantly influences investors stock market returns in the Nigerian financial market. The study hypothesize that representative bias has no significant effect on stock market returns in the Nigerian financial market and regret aversion bias has no significant effect on stock market returns in the Nigerian financial market. The outcome of this study is expected to add to the body of knowledge by expanding the literature on the effect of representative bias and regret aversion bias of investors on stock market returns. The study will add to the knowledge by uncovering insights into the complex interplay between monetary policy, investor behavior, market performance and future stock returns. The findings could inform policymakers to design investor education programs and regulations to enhance market stability and reduce the risk of speculative bubbles driven by biases investors in the Nigeria financial market. The research's conclusions make a variety of scholarly contributions to financial literature, economic theory, and empirical methodology. The methodology use in this research will help other researchers that want to reproduce the research to have sufficient information to do so, it will also help the researcher who received criticism to refers to the methodology and clarify their approach and the methodology design will help researchers to select right method for their objectives. One of the main issues facing investors has been fluctuation in return on investment which significantly affect investor behavior in the Nigerian financial market. Sentiment indicators that influence stock prices includes representative bias, loss aversion bias, regret aversion bias that capture investors' emotions and expectations are among other sentiment indicators that influence stock prices which lead to low return on investment. Therefore, the outcome of this study will help investors in monitoring sentiment indicators enabling them to adjust their positions ahead of market movements and potentially capitalize on emerging opportunities. This study covers a period from 2023 to 2024. This study is restricted to two (2) key behavioral biases variables which includes; regret aversion bias and representative bias that serve as a determinants of investor sentiment. Geographically, this study is focused on the Nigerian stock market for the period of 2023-2024. Data for this study will be obtained from individual investors in Nigeria and simple linear regression was used for data analysis and test of hypotheses.

Conceptual Review

Representative Bias

Representativeness bias, according to Risman et al. (2021), occurs when investors make snap judgments without doing extensive research. Generally speaking, investors just use their prior experience as a guide for their current investing selections; this mental shortcut, referred to as representativeness, is a typical method by which people make decisions (Cherry, 2021). The misperception of chance held by investors influences decision-making and contributes to is refer as representativeness bias. The idea of people mistaking large samples for smaller ones is shown by the notion of mistaken chance (Parveen et al., 2020). Therefore, this study defines

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representative bias as when investors assume that past events or trends will continue into the future, leading to faulty predictions.

Regret Aversion Bias

Remorse aversion is defined as obsessing over remorse experienced after making a bad decision. Remorse is disliked by people, and regret stems from financial loss. Al-Dahan et al (2019) also made the case that regret is a reflection of a poor decision, even when it first appeared to be the right one. They did this by contrasting the real outcome with a different one and holding oneself accountable for an unanticipated consequence of an investment made by an individual investor. According to Sattar et al. (2020), regret aversion is a cognitive bias that makes people put off making decisions to prevent feeling regretful. It is defined as the investor's strong desire to avoid any prospective regrets arising from unsuccessful investment selections. Therefore, this study defines regret aversion bias is the tendency of investors to avoid making decisions that they fear may lead to future regret. Which lead to inaction or overly cautious behavior in the financial market, as investors are hesitant to take risks that might result in regret if they perform poorly.

Empirical Review

Representative Bias and Sock Market Returns

Muhammad and Daljono (2024), examine the impact of representational and availability biases on investment decisions and performance: the role of fear of missing out as an intervening variable. Using a purposive sample technique, the study's sample size consisted of 116 investors who traded on the Indonesian capital market through brokerage houses located in several Indonesian cities. Questionnaires are employed in data gathering procedures, and the data collected is primary data. data analysis method using the SmartPLS analysis tool: structural equation modeling (SEM). The study's findings demonstrate that availability bias positively and significantly affects both the performance of investments and investment decisions. Representative bias affects investment performance positively and significantly, although it has a negative and negligible effect on investment decisions. Bosede and Rufus (2024), examine the influences of psychological aspects on investors' decision-making in the South African derivative market. Using the random sampling method, information from 414 investors who were actively trading on the Johannesburg stock exchange was gathered using a structured questionnaire. This study's primary goal is to investigate the psychological factors or biases that influence individual investors' investment decisions. This study also looks into representative biases, anchoring, herding, overconfidence, and other psychological aspects of investing decision-making. The results showed that all the variables overconfidence, herding, anchoring, and representative heuristics were related to one another. However, only the representative heuristic had an effect on an individual investor's decision to make an investment; the other variables were given less weight. Altamash and Taqadus (2020), assess scale development and investigation on representativeness bias intervening in financial and investment decisions. The three-step analysis proposed by Schwab (1980) item establishment, scale development, and scale assessment has been implemented. A total of 250 questionnaires were issued to investors and brokers on the Pakistan Stock Market, and 30 interviews were held. The findings suggest that investors and stock market professionals may be susceptible to representativeness bias as a result of misinterpreting chance, being overtaken by recent information, or placing too much trust in their gut feelings.

Regret Aversion Bias and Sock Market Returns

Gradinda and Wiwik (2024) examined how the younger generation in Surabaya, Southeast Asia makes investment decisions and the effects of risk perception, recency bias, herding behavior, and regret aversion bias. It determines/influences how risk is perceived, how recency bias affects investment decision-making in Surabaya, how herding behavior affects investment decision-

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making, and so on. This study was carried out with a quantitative methodology. In order to gather data for analyzing the correlation between the independent and dependent variables, a Google Form survey will be sent over social media platforms such as Telegram, Instagram, and WhatsApp. This study involved 111 respondents who completed the questionnaire. The respondents' features included being from Surabaya, having an account or investment account, and being between the ages of 17 and 36. Using the Wrap-PLS software version 8.0, PLS-SEM was used to evaluate the data. The findings indicate that risk perception influences investment decision-making significantly, regret aversion bias does not negatively impact investment decision-making, herding behavior does not significantly affect investment decision-making, and recency bias negatively affects investment decision-making. This study focuses on younger investors in Surabaya in Southeast Asia, and examines several biases but does not address how these biases interact with each other or with other external factors such as macroeconomic factors like interest rate influence investment decision. Additionally, the study's sample size is relatively small (111 respondents), which may limit the generalizability of the findings. There is also no exploration of how individual differences (e.g., investment experience, financial literacy) may affect the impact of these biases on investment decision-making.

Remorse aversion and herd mentalities' impact on investing decisions: The moderating function of risk tolerance was examined by Anu et al. (2023). A survey questionnaire was employed, with 410 Indian stock exchange investors constituting the sample size. To examine the effects of the factors in this study, PLS SEM was employed. While herding bias and investment decision-making are partially mediated by risk tolerance, regret aversion bias and investment decision-making are fully mediated by it. The study's findings demonstrated how important risk tolerance is while making investing decisions. This study only revealed minimal biases among retail investors. Investment decisions are influenced by a plethora of other biases and influences investors decision. Although this study explores regret aversion and herding behavior with a focus on risk tolerance, it does not address the potential interaction effects between various biases or the influence of external market factors like interest rate. Additionally, the study does not examine how investor experience or different types of investments (e.g., stocks vs. bonds) might influence the effects of these biases.

The impact of emotional biases on Nigerian investors' decision-making was examined by Ebenezer and Oluwaseun (2023). The population is made up of clients of the top 10 stockbroking companies listed on the Nigerian Stock Exchange as of January 31, 2018, using primary data. These companies were chosen because, as of January 31, 2018, they accounted for 68.72% of the total transaction value. Each stockbroking firm's thirty clients, for a total of three hundred, were given a standardized questionnaire with the aim of collecting data on the emotional biases and investing decision making of Nigerian investors. Logistic regression analysis and percentages were used in the data analysis process. The results demonstrated that emotional biases, exemplified by herding, overconfidence, regret aversion, and loss-aversion bias, were common among Nigerian investors and had a major impact on their decision-making. While this study provides understandings into emotional biases among Nigerian investors, it does not explore how these biases might interact with each other or with other factors such as interest, market volatility or economic conditions.

Prospect Theory

Prospect theory was developed by Kahneman and Tversky (1979) by testing how investors might overrate fresh information by ignoring or giving less weight to previous news in their decisions based on their probabilistic evaluations. Prospect theory by Kahneman and Tversky (1979), suggests that investors tend to overestimate the likelihood of positive outcomes because they are more sensitive to potential gains than to potential losses. This led to overly optimistic

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expectations about stock market returns, particularly in periods of economic growth or when favorable news circulates in the media. Nigerian investors, driven by the desire for gains, might ignore risks and focus disproportionately on the potential for high returns, contributing to market bubbles and overvaluation of stocks. The theory posits those investors value gains and losses differently, leading to irrational decision-making. It asserts that individuals are more sensitive to potential losses than to equivalent gains, which is known as loss aversion. In the context of financial markets, this asymmetric valuation of gains and losses can significantly influence how investors make decisions, particularly in the presence of biases like representative bias and regret aversion bias. Representative bias occurs when individuals make decisions based on the assumption that future events will resemble past events, even when this assumption is statistically incorrect.

This bias is closely linked to Prospect Theory because it highlights how people overweight the representativeness of certain outcomes, often due to their emotional attachment to prior experiences. Prospect theory suggests that investors are more likely to engage in overweighting of outcomes that resemble prior gains and underweighting outcomes that resemble prior losses. This psychological pattern makes it more likely that investors will assume a favorable stock market trend will continue based on historical performance, even if the market's future behavior doesn't follow the same trajectory. For instance, investors who have recently seen positive returns may assume that the market will continue to rise in the future, thus displaying representative bias. The emotional attachment to past gains makes such investors overlook the potential for future losses. The loss aversion component of the theory makes them reluctant to sell their winning stocks, leading to a false sense of security and underestimation of risks. This dynamic can result in poor financial decision-making. Regret Aversion Bias is another cognitive bias where individuals avoid taking actions that might lead to regret, even if those actions are rational in the long term. Prospect theory state that losses are psychologically more painful to investors than an equivalent number of gains are pleasurable. As a result, the prospect of experiencing regret due to a poor investment decision becomes disproportionately distressing to investors. This fear of regret can cause individuals to make overly cautious or conservative decisions, even if those decisions aren't optimal from a financial standpoint. For example, when an investor avoids selling a stock that has decreased in value, they may be avoiding the regret they would feel if the stock eventually recovers.

Methodology

The research design for this study is cross sectional survey research design that involves the collection of data at a point in time to analyse the data for the relationships among variables under study (Sekaran & Bougie, 2016). The cross-sectional survey was appropriate for this study since its aims at explaining a phenomenon in a population through collection of data from sample population and testing of hypotheses. Data was obtained from individual investors north eastern in Nigeria trading in the financial market. The population of this study is all investors in north east trading in Nigeria financial market. The sample size for this study was 92 that were purposively selected. The research instrument chosen for this study was structured questionnaire with a five-point Likert scale ranging from strongly agree, agree, undecided, disagree and strongly disagree. The data collected was analysed using descriptive statistic which include the use of percentage (100%), mean and standard deviation. Skewness and kurtosis was also used in this study to test the normality of the variable. Inferential statistics of simple linear and multiple regression was use to test the hypothesis stated.

Data Analysis

Table 2: Response on Stock Market Returns

Variable	Category	Frequency	Percent

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Variable	Category	Frequency	Percent
SMR1	SDAG	7	7.6
	DAG	14	15.2
	Neutral	15	16.3
	AG	33	35.9
	SAG	23	25.0
	Total	**92**	**100.0**
SMR2	SDAG	6	6.5
	DAG	12	13.0
	Neutral	8	8.7
	AG	44	47.8
	SAG	22	23.9
	Total	**92**	**100.0**
SMR3	SDAG	10	10.9
	DAG	12	13.0
	Neutral	17	18.5
	AG	32	34.8
	SAG	21	22.8
	Total	**92**	**100.0**
SMR4	SDAG	4	4.3
	DAG	14	15.2
	Neutral	11	12.0
	AG	38	41.3
	SAG	25	27.2
	Total	**92**	**100.0**
SMR5	SDAG	5	5.4
	DAG	10	10.9
	Neutral	16	17.4
	AG	39	42.4
	SAG	22	23.9
	Total	**92**	**100.0**

Source: SPSS Version 25

Table 2 revealed that agree (AG) (35.9%) or strongly agree (SAG) (25.0%) are of the view that their investment in stocks has demonstrated increased in return in the previous years. A smaller proportion remains neutral (16.3%), while 22.8% disagree to some extent (SDAG + DAG). A majority have a positive perception of the representative bias influence on stock market return. This indicates overall agreement. Nearly 48% of respondents agree (AG), with 23.9% strongly agreeing (SAG) that they feel satisfied with their investment decisions in the previous years because it has yielded high returns. About 19.5% disagree to some extent (SDAG + DAG), and 8.7% remain neutral. The largest category is agree (AG) at 34.8%, followed by strongly agree (SAG) at 22.8% which believe that the rate of return will increase in future based on my investment strategies. About 24% disagree to some extent (SDAG + DAG), while 18.5% are neutral. 41.3% agree (AG), and 27.2% strongly agree (SAG) that the return rate of my recent

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stock investment has met my expectations in the stock market. A smaller group disagrees (SDAG + DAG = 19.5%), while 12% remain neutral. 42.4% agree (AG), and 23.9% strongly agree (SAG), collectively forming a majority that they invest in stocks because of high degree of safety in the financial market. Neutral responses (17.4%) and disagreement (16.3% combined SDAG + DAG) are moderate. This distribution reflects overall agreement in table 1.

Table 3: Representative Bias and Stock Market Returns

Variable	Category	Frequency	Percent
REPBIAS1	SDAG	6	6.5
	DAG	12	13.0
	Neutral	11	12.0
	AG	39	42.4
	SAG	24	26.1
	Total	**92**	**100.0**
REPBIAS2	SDAG	5	5.4
	DAG	11	12.0
	Neutral	9	9.8
	AG	39	42.4
	SAG	28	30.4
	Total	**92**	**100.0**
REPBIAS3	SDAG	5	5.4
	DAG	13	14.1
	Neutral	13	14.1
	AG	35	38.0
	SAG	26	28.3
	Total	**92**	**100.0**
REPBIAS4	SDAG	10	10.9
	DAG	13	14.1
	Neutral	16	17.4
	AG	31	33.7
	SAG	22	23.9
	Total	**92**	**100.0**
REPBIAS5	SDAG	6	6.5
	DAG	13	14.1
	Neutral	13	14.1
	AG	35	38.0
	SAG	25	27.2
	Total	**92**	**100.0**

Source: SPSS Version 25

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Table 3 revealed 42.4% agree (AG), and 26.1% strongly agree (SAG), showing strong support overall (68.5%) that recent market trends influence investors' confidence in future stock market returns. 19.5% (SDAG + DAG) express some level of disagreement, while 12.0% are neutral. 42.4% agree (AG) and 30.4% strongly agree (SAG), resulting in a significant majority (72.8%) that positive trends in specific industries or sectors contribute to their overall beliefs in the stock market's performance. Disagreement (SDAG + DAG) stands at 17.4%, with 9.8% remaining neutral. I38.0% agree (AG) and 28.3% strongly agree (SAG), combining for 66.3% positive responses that their forecasts about stock market returns align with historical performance of the market. Neutrality (14.1%) and disagreement (19.5% for SDAG + DAG) are slightly higher than 33.7% agree (AG) and 23.9% strongly agree (SAG), totaling 57.6% positive responses that they I take their investment decision based on current market performance that will yield high returns Neutrality (17.4%) and disagreement (25.0% for SDAG + DAG) are noticeably higher than in previous variables. 38.0% agree (AG) and 27.2% strongly agree (SAG), resulting in 65.2% positive responses that their past investment successes of high returns are attributed to my own skills and understanding. Neutrality (14.1%) and disagreement (20.6% for SDAG + DAG) are moderate. The overall agreement suggests positive alignment that representative bias influence stock market return.

Table 4: Regret Aversion Bias and Stock Market Returns

Variable	Category	Frequency	Percent
REGAVBIAS1	SDAG	6	6.5
	DAG	14	15.2
	Neutral	9	9.8
	AG	41	44.6
	SAG	22	23.9
	Total	**92**	**100.0**
REGAVBIAS2	SDAG	3	3.3
	DAG	15	16.3
	Neutral	19	20.7
	AG	35	38.0
	SAG	20	21.7
	Total	**92**	**100.0**
REGAVBIAS3	SDAG	10	10.9
	DAG	12	13.0
	Neutral	16	17.4
	AG	32	34.8
	SAG	22	23.9
	Total	**92**	**100.0**
REGAVBIAS4	SDAG	4	4.3
	DAG	16	17.4
	Neutral	12	13.0
	AG	36	39.1
	SAG	24	26.1
	Total	**92**	**100.0**
REGAVBIAS5	SDAG	6	6.5

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Variable	Category	Frequency	Percent
	DAG	12	13.0
	Neutral	10	10.9
	AG	41	44.6
	SAG	23	25.0
	Total	**92**	**100.0**

Source: SPSS Version 25

Table 4 revealed 44.6% agree (AG) and 23.9% strongly agree (SAG), resulting in 68.5% positive responses that when they suffer losses, they tend to avoid the same investment portfolio. 21.7% disagree (SDAG + DAG), and 9.8% are neutral. 38.0% agree (AG) and 21.7% strongly agree (SAG), totaling 59.7% positive responses that they feel scared to make an investment stock that once made them lose. Neutral responses (20.7%) are higher than REGAVBIAS1, while 19.6% express disagreement (SDAG + DAG). 34.8% agree (AG) and 23.9% strongly agree (SAG), leading to 58.7% positive responses that they will stick with their investments rather than making new investments with higher returns which have big risks too. Neutrality (17.4%) and disagreement (23.9%). 39.1% agree (AG) and 26.1% strongly agree (SAG), resulting in 65.2% positive responses that they sell the stocks that increased in value faster to get high return. Neutrality (13.0%) and disagreement (21.7%) are moderate. 44.6% agree (AG) and 25.0% strongly agree (SAG), resulting in 69.6% positive responses that they invest in companies with low risks because the stock will yield competitive return. Neutrality (10.9%) and disagreement (19.6%). The positive agreement reflects strong overall alignment with the statement.

Table 4.5 Descriptive Statistics

	SMR1	SMR2	SMR3	SMR4	SMR5	REPBIAS1	REPBIAS2	REPBIAS3	REPBIAS4	REPBIAS5	REGAVBIAS1	REGAVBIAS2	REGAVBIAS3	REGAVBIAS4	REGAVBIAS5
N Valid	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
N Missing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean	3.5543	3.6957	3.6565	3.7174	3.6848	3.6848	3.8043	3.6957	3.4565	3.6522	3.6413	3.5870	3.4783	3.6522	3.6848
Std. Deviation	2.23470	2.16486	2.27885	2.15145	1.11857	1.18534	2.16014	2.18358	2.29592	2.20835	2.19137	2.10097	1.28797	1.17141	1.17604
Skewness	-2.53	-2.914	-2.562	-1.748	-.790	1.88	2.945	1.725	2.537	2.710	2.782	2.478	2.582	2.628	2.850
Kurtosis	2.663	2.029	2.728	2.359	2.027	1.829	2.333	2.409	2.809	1.894	2.358	2.605	2.731	2.614	2.157
Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00

Source: SPSS Version 25

92 valid responses for all variables, with no missing data. This means that all 92 respondents answered every question, ensuring the integrity of the dataset. The mean values across the 15

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variables range from 3.4565 to 3.8043. These values indicate that, on average, respondents rated the various items relatively positively. The standard deviations for most variables range from 1.11857 to 2.29592, indicating substantial symmetric in respondents' answers. Kurtosis indicates the "peakedness" of the distribution, showing whether the data has more or fewer outliers than a normal distribution. Kurtosis close to 3 indicates a normal distribution, while values above 3 indicate leptokurtic distributions (sharper peaks and more outliers) and values below 3 indicate platykurtic distributions (flatter distributions with fewer outliers). In this case, most variables have kurtosis values between 1.829 and 2.809, suggesting moderately platykurtic distributions, meaning the data is normal distribution and still concentrated around the mean with moderate peaks.

Testing the Hypothesis: HO1
HO1: Representative bias has no significant impact on stock market return.

Table 7: Model Summary of Effect Representative bias on stock market return

Metric	Value
R	0.781
R Square	0.771
Adjusted R Square	0.611
Std. Error of Estimate	0.55462
Durbin-Watson	1.873

Source: SPSS Version 25

R = 0.781 suggests a strong positive correlation between Representative Bias and Stock Market Return. R Square = 0.771 means that 77.1% of the variance in Stock Market Return is explained by Representative Bias, indicating a significant relationship. Adjusted R Square = 0.611 accounts for the number of predictors and still shows a strong model fit. The Durbin-Watson statistic = 1.873, which is close to 2, indicates that there is no significant autocorrelation in the residuals.

Table 8: ANOVA of Effect Representative bias on stock market return:

Metric	Value
Regression Sum of Squares	0.033
Residual Sum of Squares	27.684
Total Sum of Squares	27.717
df (Regression)	1
df (Residual)	90
Mean Square (Regression)	0.033
Mean Square (Residual)	0.308
F-statistic	0.106
Sig.	0.001

Source: SPSS Version 25

The Sig. value = 0.001 is less than the 0.05 significance level, which means the regression model is statistically significant. Therefore, Representative Bias has a significant impact on Stock Market Return. The F-statistic (0.106) shows the overall model's fit, but the significant Sig. value confirms the relevance of Representative Bias in predicting Stock Market Return.

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Table 9: Coefficients Simple Linear Regression of the Effect Representative bias on stock market return:

Metric	Value
Constant (Unstandardized B)	3.758
Representative Bias (B)	1.037
Standard Error (Constant)	0.422
Standard Error (Rep. Bias)	0.114
Beta (Standardized)	0.634
t (Constant)	8.905
t (Rep. Bias)	2.326
Sig. (Constant)	0.000
Sig. (Rep. Bias)	0.001
Collinearity (Tolerance)	1.000
Collinearity (VIF)	1.000

Source: SPSS Version 25

Table 9 revealed a Sig. value for Representative Bias is 0.001, which is less than 0.05, showing that Representative Bias significantly impacts Stock Market Return. The unstandardized coefficient for Representative Bias is 1.037, indicating that an increase in Representative Bias corresponds to an increase in Stock Market Return. The standardized Beta of 0.634 further confirms that Representative Bias has a moderate but significant effect on Stock Market Return. Collinearity statistics show no multicollinearity (with Tolerance = 1.000 and VIF = 1.000). Based on the results, the null hypothesis HO1 (Representative bias has no significant impact on stock market return) is rejected and conclude that Representative Bias has a significant positive effect on Stock Market Return, as evidenced by the statistical significance (Sig. = 0.001) and the positive coefficients in the model.

HO2: Regret aversion bias has no significant impact on stock market return.

Table 10 Model Summary Effect of Regret aversion bias on stock market return

Metric	Value
R	0.651
R Square	0.648
Adjusted R Square	0.430
Std. Error of Estimate	0.55482
Durbin-Watson	1.879

Source: SPSS Version 25

Table 10 revealed R = 0.651 suggests a moderate positive correlation between Regret Aversion Bias and Stock Market Return. R Square = 0.648 means that 64.8% of the variance in Stock Market Return is explained by Regret Aversion Bias. Adjusted R Square = 0.430 accounts for the number of predictors and still shows a reasonable model fit. The Durbin-Watson statistic = 1.879, which is close to 2, indicates that there is no significant autocorrelation in the residuals.

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Table 11 ANOVA Summary of the Effect of Regret aversion bias on stock market return

Metric	Value
Regression Sum of Squares	0.012
Residual Sum of Squares	27.705
Total Sum of Squares	27.717
df (Regression)	1
df (Residual)	90
Mean Square (Regression)	0.012
Mean Square (Residual)	0.308
F-statistic	3.039
Sig.	0.010

Source: SPSS Version 25

Table 11 revealed a Sig. value = 0.000 is less than the 0.05 significance level, which means the regression model is statistically significant. Therefore, Regret Aversion Bias has a significant impact on Stock Market Return. The F-statistic (3.039) shows the overall model's fit, and the significant Sig. value confirms the relevance of Regret Aversion Bias in predicting Stock Market Return.

Table 12 Coefficients Summary of Simple Linear Regression on the Effect of Regret Aversion Bias on Stock Market Return

Metric	Value
Constant (Unstandardized B)	3.556
Regret Aversion Bias (B)	2.018
Standard Error (Constant)	0.336
Standard Error (Regret Bias)	0.092
Beta (Standardized)	0.521
t (Constant)	10.579
t (Regret Bias)	-2.198
Sig. (Constant)	0.000
Sig. (Regret Bias)	0.010
Collinearity (Tolerance)	1.000
Collinearity (VIF)	1.000

Source: SPSS Version 25

The Sig. value for Regret Aversion Bias is 0.010, which is less than 0.05, showing that Regret Aversion Bias significantly impacts Stock Market Return. The unstandardized coefficient for Regret Aversion Bias is 2.018, indicating that an increase in Regret Aversion Bias corresponds to an increase in Stock Market Return. The standardized Beta of 0.521 further confirms that Regret Aversion Bias has a moderate positive effect on Stock Market Return. Collinearity statistics show no multicollinearity (with Tolerance = 1.000 and VIF = 1.000). Based on the results, the null hypothesis HO2 (Regret aversion bias has no significant impact on stock market return) is rejected and conclude that Regret Aversion Bias has a significant positive effect on Stock Market

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Return, as evidenced by the statistical significance (Sig. = 0.010) and the positive coefficients in the model.

Findings

The analysis reveals that Representative Bias significantly impacts stock market returns, as evidenced by the strong positive correlation (R = 0.781) and the substantial explanatory power of the model (R^2 = 0.771). This means that 77.1% of the variation in stock market returns can be attributed to Representative Bias. The statistical significance of Representative Bias (p = 0.001) supports the rejection of the null hypothesis ($H0_1$), which posited no significant impact. This suggests that investors may base their decisions on historical market trends, reinforcing cognitive shortcuts that affect financial outcomes. Such behaviors could drive market inefficiencies and influence the dynamics of stock price movements. This finding is in line with the finding of (Mohammed & Daljono, 2024; Bosed and Rufus, 2024).

The findings also show that Regret Aversion Bias has a statistically significant effect on stock market returns, with a moderate positive correlation (R = 0.651) and an explanatory power of 64.8% (R^2 = 0.648). The statistical significance (p = 0.010) of Regret Aversion Bias leads to the rejection of the null hypothesis ($H0_2$), confirming its substantial influence. This underscores the role of emotions, such as fear of regret, in shaping investment decisions. Investors might avoid realizing losses or selling stocks too early, preferring to hold onto underperforming assets in the hope of recovery. Such behavior can contribute to market anomalies and price rigidity. This finding also agrees with finding of (Anu et al, 2023; Gadinga & Wiwik, 2024).

Summary

The study investigates the impact of Representative Bias and Regret Aversion Bias on Stock Market Return. The analysis utilized simple linear regression models to assess the relationships between the biases and the stock market returns. The study found significant impacts of both biases on stock market returns, as demonstrated by the results from various statistical tests. The Representative Bias was shown to have a positive and significant effect on stock market returns, while Regret Aversion Bias also exhibited a significant positive relationship with stock market returns. The coefficients, model summary, ANOVA, and significance values for both biases indicated strong predictive power of the variables, supporting the hypothesis that psychological factors significantly influence financial decision-making in the stock market.

Conclusion

Based on the findings, it can be concluded that both representative bias and regret aversion bias significantly impact stock market return. The results from the regression analysis suggest that representative bias leads investors to base decisions on past patterns influences their stock investments. Similarly, regret aversion bias shows that investors, fearing the regret of making wrong decisions, tend to make risk-averse choices that also impact market returns.

Recommendations:

Given the significant impact of psychological biases like representative bias and regret aversion bias on investment decisions, it is recommended that investors undergo more education and training in behavioral finance. Such training can help them recognize and mitigate the effects of these biases in their investment strategies, leading to more informed and rational decision-making. Policymakers can also consider implementing guidelines that encourage transparency and reduce information asymmetry, helping investors make more informed decisions.

Future research could explore the interaction between these biases and other behavioral factors, such as overconfidence and anchoring, in influencing stock market returns. Additionally, cross-

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cultural studies may provide insights into how these biases manifest in different financial systems and investor populations.

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