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Empirical Model of Desirability and Illusion-control Biases in Investment Decisions

Mang, Niri Job (Ph.D)[1]; Goselle Nankap Magaji[2] & Ikeobi Nneka Rosemary (Ph.D)[3]

[1, 2]Department of Banking and Finance, University of Jos
[3]Department of Actuarial Science, University of Jos

Email: mangn@unijos.edu.ng

Phone: +234-8036044393

ABSTRACT

Traditional finance often assumes that investors behave rationally when faced with the task of decision making. Behavioural finance has challenged such assumptions citing the role of behavioral biases. This study investigates the influence of two critical behavioral biases—desirability bias and illusion of control—on investment decisions in the Nigerian stock market. Traditional financial theories assume investor rationality, yet empirical evidence from behavioral finance demonstrates that psychological factors significantly shape investment behaviors. Desirability bias, defined as the tendency to overestimate favorable outcomes, and illusion of control, the overestimation of one's ability to influence market events, are both prevalent among retail investors but remain underexplored in tandem. Using a logistic regression model and data from 110 respondents, the study empirically tested the effects of these biases on investment decisions. Results reveal that while desirability bias significantly influences investment behavior ($p = 0.004$), illusion of control does not have a statistically significant effect ($p = 0.434$). These findings suggest that emotionally driven optimism exerts a stronger influence on investor decision-making than perceived control. The research contributes to the growing literature on behavioral finance in emerging markets and underscores the importance of investor education and bias-awareness interventions.

Key Words: Behavioural Finance**,** desirability bias, illusion of control, Investment Decision and Nigerian stock market

1.0 INTRODUCTION

Globally, the decision to invest in the stock market is considered a complex process particularly because it involves the influence of both rational and psychological factors (Padmavathy, 2024). Although most traditional finance theories such as the Efficient Market Hypothesis (EMH) and Modern Portfolio Theory (MPT), assume that investors act rationally (Akkaya, 2021), scientific evidence on projective measures within behavioural finance from the late 90s reveal that psychological biases and cognitive heuristics significantly shape investment behavior (Kahneman & Tversky, 1979; Barberis & Thaler, 2003; Bhanu, 2023). Among these psychological factors, desirability bias and illusion of control have emerged as critical yet underexplored determinants of stock market investment decisions.

Desirability bias, which is often viewed as the tendency of investors to overestimate the probability of favorable outcomes for investments (Dervishaj, 2021), has been associated with the decisions of investors on the stock market (Jain, Walia, Kaur, & Singh, 2022). Although this tendency may not be universal, desirability bias leads to an optimism-driven selection of stocks, often disregarding fundamental analysis and risk assessment (Mittal, 2022). Another possibility is that investors influenced by desirability bias may gravitate toward stocks of well-known brands, trending industries, or firms aligned with their personal beliefs, thereby exposing themselves to mispriced securities and excessive volatility.

In dealing with the point of view that investors may not always act or make decisions in rational ways, the illusion of control has been found to be prevalent among retail investors who believe that personal expertise, frequent trading, or reliance on technical analysis always produce desired outcomes (Daníelsson, 2022). Illusion of control describes an investor's overestimation of their ability to influence or predict market outcomes (Zelienková, 2021). This cognitive bias is particularly linked to increased trading frequency, under-diversification, and overconfidence, all of which can erode portfolio performance over time (Mishra, 2024).

The duo of desirability bias and illusion of control presents a significant challenge to investment rationality (Sathya, & Gayathiri, 2024). While prior research (Gabhane, Sharma, & Mukherjee, 2023) had examined these biases individually, their influence on stock market decision-making remains underexplored. Given that investment decisions impact not only individual wealth accumulation but also broader market efficiency, understanding these psychological drivers is essential for both investors and policymakers. By integrating behavioral finance insights with empirical analysis, this paper aims to provide a deeper understanding of how cognitive distortions influence investor behaviour and risk-taking tendencies.

Although the assumption that investor's approach towards stock market decisions are solely based on the axiom of rationality has been thoroughly debunk by several scholars (Daxhammer, Facsar, & Papp, 2023), ample evidence suggests that there exists a dearth of research addressing desirability bias and illusion of control in

stock market investment decisions. Investment in the Nigerian Stock Exchange presents both opportunities and risks. While some investors achieve substantial returns, others incur significant losses, often due to flawed decision-making processes. While both biases are individually studied (illusion of control comprehensively while desirability bias minimally), only explicitly explores their relationship, concluding they are distinct with weak correlation. No study empirically isolated the effect of illusion of control and desirability bias, thus revealing a significant theoretical and empirical gap. The broad objective of this paper is to develop an empirical model that explains investment decisions within the Nigerian stock market. Specifically, the study aims to investigate the influence of Desirability bias and Illusion of control on investment decision of stock market investors in Nigeria. Arising from the aforementioned objectives, the research questions that guide this paper are; 'What influence does Desirability and Illusion of control biases have on investment decision of stock market investors in Nigeria?'

The study hypothesizes that;

Ho $_1$: Desirability bias does not have significant influence on investment decisions on the Nigerian stock market.

Ho $_2$: Illusion of control bias does not have significant influence on investment decisions on the Nigerian stock market.

2.0 LITERATURE REVIEW

2.1 CONCEPTUAL REVIEW

2.1.1 Illusion of control

Illusion of control refers to the tendency of investors to believe they have more influence over outcomes than they actually do (Daníelsson, 2022). In the context of the Nigerian Stock Exchange, investors may feel that their research or intuition gives them an edge, leading them to overestimate their ability to predict stock movements. For instance, a retail investor might assume that attending financial workshops or analyzing past market trends ensures successful investments, even though market outcomes are often influenced by external, uncontrollable factors (Chowdhury, Mahdzan, & Rahman, 2024). This false sense of control can lead to excessive trading, higher risk exposure, and suboptimal portfolio performance. The illusion of control is a cognitive bias where investors overestimate their ability to influence or control events that are inherently random or uncertain (Leong, 2025). This bias leads individuals to believe that they have more control over their investments than they actually do, especially in markets where outcomes are unpredictable. In the context of the Nigerian Stock Exchange, retail investors often exhibit the illusion of control when they make investment decisions based on past successes or the belief that their expertise allows them to predict market movements more accurately than others.

Research has shown that individuals who believe they can control or predict uncertain outcomes are more likely to take on riskier investments. In financial markets,

this illusion often leads to excessive trading and the concentration of portfolios in a few stocks or sectors (Saliya, 2025). Investors who believe they have control over stock prices may disregard the risk of loss, leading to poor investment choices. In the Nigerian market, the illusion of control is particularly pronounced among retail investors who have limited knowledge of market dynamics and are prone to speculative behavior. Many retail investors may believe that their ability to follow trends or "read" the market provides them with an advantage over others, which leads them to take on excessive risks. This behavior may be exacerbated by the lack of investor education and the influence of informal market advice, often based on incomplete or inaccurate information.

A study by Rajput, Gulammustufa, & Vidani, (2024) found that investors who overestimate their ability to predict stock price movements tend to trade excessively, leading to lower returns. This is consistent with the behavior observed in the NSE, where retail investors may engage in overtrading based on the belief that they can time the market. Thus, the illusion of control not only impacts individual investment decisions but can also contribute to broader market inefficiencies.

2.1.2 Desirability Bias

The desirability effect, also referred to as the wishful thinking effect, is a cognitive bias where individuals overestimate the likelihood of positive outcomes because they desire those outcomes to occur. In investment decision-making, this effect leads investors to believe that investments will perform better than they realistically can, driven by a desire for financial gain (Ayaa, Peprah, Mensah, Owusu-Sekyere, & Daniel, 2022). The desirability effect can distort investors' judgment by causing them to overlook negative information or dismiss risks, especially when they are emotionally invested in the outcome. The desirability effect occurs when investors believe that favorable outcomes are more likely simply because they want them to happen (Ahmad, Lensink, & Mueller, 2023; Krizan & Windschitl, 2007). In the NSE, this may manifest when investors overestimate the future performance of stocks from sectors they are optimistic about, such as oil and gas or fintech. For example, if an investor desires high returns from a newly listed company, they may overvalue that company’s prospects and dismiss red flags, leading to poor investment choices. This effect amplifies overconfidence by distorting judgment and encouraging risky decisions based on hope rather than analysis.

In the Nigerian Stock Exchange, the desirability effect is particularly noticeable during periods of market optimism or boom. Investors who are emotionally attached to specific stocks or sectors, particularly in sectors that are seen as "hot" or rapidly growing (e.g., technology, banking, and oil), may ignore negative market indicators or unfavorable trends because they are hoping for a high return. The desire for high returns can cloud their judgment and lead them to take on excessive risks, such as investing in overvalued stocks or engaging in speculative trading. Research

has shown that the desirability effect can lead to mispricing of assets, as investors become overly optimistic about the future potential of certain stocks (Almansour, Elkrghli, & Almansour, 2023). In the context of the NSE, this effect may contribute to market bubbles, where stock prices are driven up by irrational optimism, disconnected from the underlying fundamentals. For example, retail investors may become enamored with a particular stock or sector, driving prices higher despite the lack of strong financial performance, and they may continue to hold these stocks due to their emotional attachment. Additionally, the desirability effect can lead investors to underestimate the risks involved in their investments, especially when they are surrounded by positive news or peer pressure. In Nigeria, where market sentiment can shift rapidly and media coverage can heavily influence investor decisions, the desirability effect may exacerbate overconfidence, contributing to speculative bubbles and increased market volatility.

CONCEPTUAL FRAMEWORK

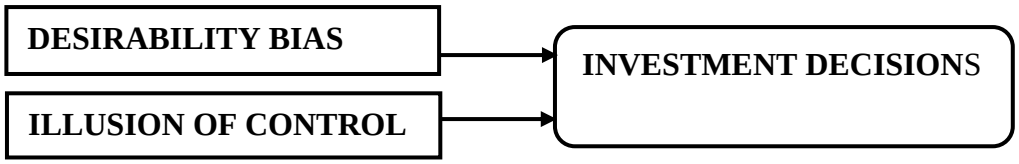

Figure 1: Cognitive Bias and Investment Decisions

2.2 THEORETICAL REVIEW

Regulatory Focus Theory (RFT)

Regulatory focus is a Theory of self-regulation that provides an understanding of when success feedback is more likely to increase expectancies and maintain or induce avoidance motivation (Grant, Idson, and Higgins, 2001). The theory was propounded Higgins, (1997) and is basically a goal pursuit theory which can be applied to the field of behavioural finance. It examines the relationship between the motivation of a person and the way in which they go about achieving their goal or investment decisions. It assumes that at any given time, people may engage in self-regulation with a promotion focus or a prevention focus (Higgins et al., 2001). The central contribution of regulatory focus is to posit the identification of two stylized strategies aimed at achieving individual standards and goals: ‘promotion focus’ and ‘prevention focus’ (Higgins, 1997).

The theory posits that individuals approach investment decisions through the instinctive internal drive or desires towards the pursuits of profit or the avoidance of loss. The pursuit of profit is associated with the hedonic principle that humans approach pleasure and the avoidance of loss is associated with the human desire to avoid pain (Idson, Liberman, & Higgins, 2000). Thus, the theory revolves around the orientation of an eager pursuit of investment goals or the cautious attempt to prevent

a loss. The theory implies two potentially independent definitions of these inclinations, the self-guide versus the reference-point definitions (Summerville, & Roese, 2008). However, the theory is limited by its inability to recognize the role of the external environment in developing investment decisions. External factors like political influence, insecurity, family, etc are necessary triggers of promotion or prevention orientations that can develop investment decisions. Figure 2 depicts the relationship between regulatory focus orientation and investment decisions. The individual whose orientation tends towards promotion focus has positive internal drives towards the "ideal" as evidenced by their hopes and aspiration. On the other hand, the prevention focused individuals develop their investment decisions through the negative approach, meaning they embrace the "oughts" which may be responsibilities and obligations.

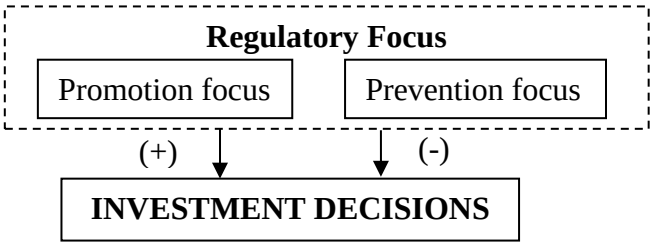

Figure 2: *Regulatory Focus Theory (RFT)*
Source*: Higgins, (1997)*

2.3 EMPIRICAL REVIEW

2.3.1 Illusion of control and investment decisions

Empirical investigations into the illusion of control in financial decision-making consistently demonstrate that this cognitive bias exerts a significant and positive influence on stock market investment behavior. Ample evidence suggest that illusion of control is positively correlated with more frequent and confident investor decision-making, often reaching statistically significant thresholds. These findings suggest that investors who perceive an inflated sense of control over market outcomes tend to exhibit greater propensity toward active engagement in trading, regardless of the objective unpredictability of market dynamics.

Scientific evidence on projective measures of investment decisions have been densely focused on personality or demographic characteristics which seem to only present only one side of the coin, resulting in small explanatory scope (Tansuchat, & Thaicharo, 2025). A cognitive approach has been found to offer another unique dimension for investment decisions. Vodă and Florea (2019) used a cognitive approach to examine how much illusion of control consolidates investment decisions. From a sample of 270 students in two different Romanian Universities, they analyzed collected data through a multivariate logistic regression to conclude that illusion of control and two other variables (Locus of control and need for achievement) are important determinants of investment decisions. This argument was further

strengthened by the structural equation modelling analysis conducted by Ayudiastuti (2021). The study analyzed data gathered from 100 student equity investors from Universitas Nusantara PGRI Kediri, Indonesia. The study found that illusion of control has a significant positive influence on investment decisions. In an unrelated line of methodological research approach, Harischandra et al.,(2020) came to the conclusion that illusion of control has a significant positive influence on investment decisions. The study analyzed responses from 100 investors domiciled in Denpasar, Indonesia using a quantitative correlational study. The key variables for the study included; financial literacy, illusion of control, regret aversion bias, and risk tolerance.

2.3.2 Desirability Bias and investment decisions

Yin, & Yang, (2022) conducted a behavioural experiment using investors on the stock market. The experimental study involved wishful thinking and wishful betting as key variables in relation to investment decision on the stock market. The study concluded that wishful thinking contaminates beliefs in financial markets. This implies that wishful thinking influences investment decisions negatively. Empirical studies show that desirability bias has positive significant impact on investment decisions. Suresh, (2024) used a quantitative correlational study of 220 investors to examine the influence of desirability bias and financial literacy.

Using a cross-sectional survey design, Lather et al., (2020) examined 618 investors from different regions of India. The study used desirability bias and illusion of control, and came to the conclusion that high internal desirability bias is associated with increased investment decisions. In a similar quantitative approach, a study was carried out by Sun et al., (2022) in which 450 individual investors from Northern Indian states were examined. The study used structural equation modelling technique to conclude that heuristic bias (illusion of control and desirability bias) have positive influence on investment decisions on the stock market.

3.0 METHODOLOGY

*This study adopts a **positivist research philosophy**, which emphasizes objectivity, empirical measurement, and hypothesis testing. Positivism is appropriate for this research because it allows for the quantification of relationships between psychological constructs—specifically, Illusion of Control, Bias, Desirability Bias and investment Decision. A **cross-sectional explanatory research design** was utilized. This design is appropriate for examining the causal relationships between independent variables. The target population for this study comprises retail **investors who have actively participated in the Nigerian Stock Exchange (NSE) between 2022 and 2025**. Due to the absence of a comprehensive public registry of retail investors, **non-probability purposive sampling** was employed to ensure that respondents possess relevant investment experience.*

Data were collected from individuals who self-identified as stock investors through investment platforms, social media investment forums, and financial literacy

groups. Data were collected through an adapted, **structured online questionnaire**, administered via Google Forms. To ensure adequate sample size and statistical power, a minimum of 123 **responses** was targeted, as determined using Cochran's formula for infinite populations at a 95% confidence level and 5% margin of error.

3.1 Model Specification

The functional form of the logistic regression model is stated as:

$$L_i = In\left(\frac{P_i}{1-P_i}\right) = \beta_1 + \beta_2 ICB + \beta_3 DSB$$

Where:

L is the logit.

P_i, the probability of investment decision assigned as, 1

$(1 - P_i)$, the probability of no investment decision assigned as, 0

Ln = log

ICB= Illusion of Control Bias

DSB = Desirability Bias

β_1= Intercept of the logistic model

β_2= Coefficient of Illusion of Control bias

β_3= Coefficient of Desirability Bias

3.2 Result and Discussion of Findings

Table 1: Reliability Statistics

Guttman	.730
N of Items	19

The average correlation between the scale's items is indicated by the Guttman reliability coefficient value. As may be seen from the value, which goes from 0 to 1, 0 denotes low reliability and 1 denotes excellent reliability. The standard recommendation is 0.7 (Pallant, 2004). An "Alpha score above 0.75 is generally taken to have a high reliability, 0.5-0.75 indicate a moderate reliable scale, and a value below indicates a low reliability," according to Hinton, Brownlow, McMurray, and Cozens (2004). The Guttman's reliability test score of.730 in Table 1 indicates that the instrument is dependable.

Table 2: Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	110	89.4
	Missing Cases	13	10.6
	Total	123	100.0
Unselected Cases		0	.0
Total		123	100.0

a. If weight is in effect, see classification table for the total number of cases.

The study's sample data summary is displayed in Table 2. Out of 123, 110 were used for analysis, and 13 were used to correct for missing values, according to the results. Since there are less than ten independent variables in this study, the two independent variables that are present satisfy the criteria for additional analysis. The logistic regression estimating method becomes inconsistent when this requirement is broken since it results in a big standard error.

Table 3: Dependent Variable Encoding

Original Value	Internal Value
No Investment Decision	0
Investment Decision	1

Table 3 illustrates how a dichotomous dependent variable and metric or dichotomous independent variables are related using logistic regression. A probability value ranging from 0.0 to 1.0 is the variate or value that logistic regression generates.

Table 4: Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	11.351	2	.003
	Block	11.351	2	.003
	Model	11.351	2	.003

Table 4 shows the result for the test of model fit. For this study, goodness-of-fit statistics help you to determine whether the model adequately describes the data. The Hosmer-Lemeshow statistic indicates a poor fit if the significance value is less than 0.05. Here, the model adequately fits the data, because the P-value is less than the level of significance of 0.05

Table 5: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	55.669[a]	.098	.215

Table 5 shows the coefficient of determination, R^2. The Cox and Snell R^2 and Negelkerke are used to determine the variation of the dependent variable as a result of the changes in the independent variables. Here it is indicating that 9.8% and 21.5% of the variation in the dependent Variable is explained by the independent variable in logistic model.

Table 6: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	ICB	.318	.406	.612	1	.434	1.374
	DSB	1.141	.395	8.337	1	.004	3.130
	Constant	-3.248	1.979	2.693	1	.101	.039

a. Variable(s) entered on step 1: ICB, DSB.

Table 3 shows the result of the logistic regression for the influence of behavioural finance on the investment decision on the stock market. The coefficient of the variable *illusion of control bias* shows that there is a positive relationship to investment decision on the Nigerian stock market.

The result revealed that illusion of control bias generates the urge to engage in stock market decision. It shows that there is 1.374 chances of illusion of control rousing investors into making decisions to trade on the stock market.

But, the effect shows an insignificant relationship in table 6 as the p-value (0.434) is greater than the significant level of 0.05. Therefore, the null hypothesis is upheld while the alternate rejected and conclude that illusion of control bias does not have significant influence on the investment decisions on the Nigerian stock market.

The value of desirability bias shows a positive relationship to investment decision of investors on the Nigerian stock exchange. The result pointed out that desirability bias brings about investment decision of investors on the stock market. It discloses that desirability bias is more likely to prompt investment decision among these investors by 3.130 times. However, the effect as shown in table 6 reveals a significant relationship as the p-value (0.004) which is less than the significant level of 0.05. Therefore, the null hypothesis is rejected, as there are no enough reasons to uphold it while the alternate accepted and conclude that Desirability bias has significant influence on the investment decision of investors on the Nigerian stock market.

3.3 DISCUSSION OF FINDINGS

Based on the result of the logistics regression, it shows that:

The first hypothesis indicated that null hypothesis is upheld while the alternate rejected and conclude that; illusion of control does not have significant influence on the investment decision on the Nigerian stock market. The result is consistent with Ayudiastuti (2021) who found that illusion of control has a significant positive influence on investment decisions. Also, Liu, C. (2021) demonstrated that illusion of control led to poor portfolio diversification in experimental settings, particularly when self-selection was possible.

Subsequently, for the second hypothesis, the null hypothesis was not upheld, as there are enough reasons to reject it while the alternate accepted and conclude that; desirability bias has significant influence on the investment decision of investors on the Nigerian stock market. The result is consistent with Malik et al. (2022) who reported a positive relationship between desirability bias and investment decision with this bias generating market anomalies. Interestingly, experienced investors seem to be less prone to these biases than inexperienced ones (Pham, 2025). However, these findings highlight the pervasive influence of behavioral biases on investment decisions across different stock markets and investor types.

4.0 CONCLUSIONS AND RECOMMENDATIONS

This study set out to empirically examine the effects of desirability bias and illusion of control on stock market investment decisions in Nigeria. Grounded in behavioral finance theory, the research highlights how psychological distortions influence investor behavior beyond the assumptions of rational decision-making. The findings demonstrate that **desirability bias has a significant positive impact** on investment decisions, supporting the notion that emotional optimism and wishful thinking often override objective analysis in shaping investor actions. Conversely, the **illusion of control, although positively correlated, does not significantly affect** decision-making, indicating that overconfidence in personal control or forecasting skills may not be as dominant a factor in this context.

These outcomes reinforce the need for enhanced investor education and behavioral awareness initiatives, particularly in emerging markets like Nigeria, where retail investors play an active role but often operate with limited financial literacy. Policymakers and financial advisors should consider integrating behavioral insights into investment advisory services to mitigate irrational behaviors and promote more informed decision-making. Ultimately, understanding and addressing these biases can lead to more stable market dynamics and improved individual financial outcomes.

5.0 AUTHOR'S CONTRIBUTIONS

Mang, Niri Job (PhD) conceived the research idea, designed the methodology, and led the data analysis. He also contributed significantly to the theoretical framing of behavioral finance within the Nigerian context and coordinated the overall manuscript development.

Goselle Nankap Magaji was responsible for the data collection, survey instrument design, and statistical modeling. He played a major role in the empirical testing using logistic regression and contributed to interpreting the findings in relation to investor behavior in emerging markets.

Ikeobi Nneka Rosemary (PhD) reviewed the literature on desirability bias and illusion of control, and provided critical insights on the psychological underpinnings of behavioral finance. She also led the writing of the discussion and policy implication sections, and revised the manuscript for intellectual content and academic rigor.

All authors reviewed and approved the final manuscript.

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