Journal of Accounting and Financial Management E-ISSN 2504-8856 P-ISSN 2695-2211
Vol 11. No. 3 2025 www.iiardjournals.org online version

# An Empirical Analysis of Loss Aversion and Investment Decisions: Evidence from Emerging Markets

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DOI: 10.56201/jafm.vol.11.no3.2025.pg17.35

***Abstract***

*This study examines the impact of loss aversion on investment decisions made by retail investors in Nigeria, taking into account the moderating role of financial knowledge and risk perception. The study contextualizes the results in the sub-Saharan African context and draws comparisons with existing research on South Africa. The study examines how loss aversion, a core concept of prospectus theory, influences investment decisions in an emerging market characterized by unique economic, regulatory, and cultural factors. Quantitative data collected from a sample of Nigerian retail investors is analyzed using regression analysis and ANOVA. Qualitative data collected through interviews complement the quantitative results and provide deeper insights into investors' motivations and experiences. The results confirm the significant impact of loss aversion on investment decisions, with higher loss aversion leading to more conservative investment decisions. Financial knowledge has been shown to play a decisive role in reducing the impact of loss aversion, as financial-savvy investors tend to adopt more aggressive investment behavior. The comparative analysis with South Africa underlines the importance of market-specific factors and suggests that market development, regulatory frameworks and cultural contexts can influence the development of loss aversion. This study contributes to the literature on behavioral finance by providing empirical data from a little-researched emerging market. It provides practical insights to investors, financial advisors, regulators and policy makers in Nigeria and highlights the need for financial knowledge, tailored advice, and robust investor protection mechanisms.*

***Keywords****: loss aversion, financial literacy, risk perception, investment decisions, emerging markets*

## Introduction

The efficient functioning of financial markets depends heavily on the rationality of investors, a cornerstone of traditional economic theories such as expected utility theory (EUT) (Von Neumann & Morgenstern, 1944). EUT assumes that individuals make decisions based on maximizing expected benefits, assuming perfect information and rational behavior. Behavioral finance, however, has shown that psychological biases often distract investor behavior from this idealized rationality (Kahneman & Tversky, 1979). One of these prominent prejudices is loss aversion, the tendency of people to feel the pain of a loss more than the joy of a corresponding gain (Kahneman & Tversky, 1992). This asymmetry in the perception of gains and losses can significantly influence investment decisions, lead to sub-optimal decisions and possibly contribute to market anomalies (Shefrin & Statman, 1985).

Loss aversion may be reflected in various investment patterns, including excessive risk aversion (Thaler, 1980), the disposition effect (Shefrin & Statman, 1985; Odean, 1998), and reluctance to realize losses (O'Donoghue & Rabin, 2001). As Ingalagi (2024) points out, loss aversion can lead to sub-optimal investment decisions, such as holding on to lost investments for too long in the hope of recovery. In their meta-analysis, Brown et al. (2024) confirm the robust presence of loss aversion in various studies and contexts and emphasize its important role in economic decisions.

While the effects of loss aversion in developed countries have been studied extensively (e.g. Barberis et al., 2006; Grinblatt & Han, 2005; Weber & Camerer, 1998), its role in emerging markets is still relatively little researched. Emerging markets characterized by higher volatility (Bekaert & Harvey, 1997), information asymmetry (Akerlof, 1970), less developed regulatory frameworks (La Porta et al., 1998), and often less financially savvy investors (Chakrabarty et al., 2018) provide a unique context for studying loss aversion. These characteristics can increase the influence of psychological biases on investment decisions and lead to greater market instability and inefficiency (De Long et al., 1990). Higher volatility can amplify the emotional impact of losses, leaving investors in emerging markets particularly vulnerable to loss aversion.

As Loang (2023) suggests, risk-averse behavior in emerging markets can be influenced by macroeconomic indicators and banking sector characteristics, further underscoring the complexity of investment decisions in these contexts. This study focuses on Nigeria, a fast-growing economy and Africa's most populous country, as an important case study in the sub-Saharan African context. Nigeria's booming financial market is seeing an increasing participation of private investors (SEC, 2021), making it a particularly relevant environment to study the effects of behavioral distortions.

In addition, the unique regulatory environment (SEC, 2023), specific investment behavior in the Nigerian market (e.g. heavy reliance on informal investment channels, Okoro et al., 2021) and the evolving financial landscape with the advent of fintech and mobile money platforms (Mungai & Ngugi, 2021) make it a compelling context for studying loss aversion. Improved access to financial products and services via these platforms can potentially offer investment opportunities to a larger portion of the population while potentially making them more susceptible to behavioral bias. While research on loss aversion in Africa is increasing (e.g. Appiah-Kusi & Gyekye, 2012; Darrat & Benkato, 2016), studies that focus specifically on Nigeria and take into

account recent changes in its financial ecosystem are still limited. Research such as that by Ozoemena and Chukwuani (2022) highlights the psychological factors involved in Nigerian investment decisions, but further research on loss aversion is needed.

To contextualize the findings from Nigeria, this study draws comparisons with South Africa, a more mature and developed financial market in sub-Saharan Africa. South Africa's more established regulatory framework (FSCA, 2023), a higher level of financial knowledge (Financial Sector Conduct Authority, 2020) and the different cultural context provide a valuable comparison. This study examines how loss aversion manifests itself in Nigeria and how it influences investment decisions in Nigeria. Compared to previous research on South Africa, potential similarities and differences are identified and the underlying factors that contribute to these differences are examined. This comparative perspective will enrich the analysis and contribute to a deeper understanding of loss aversion in various emerging markets.

In addition, understanding the differences in loss aversion in these two markets can provide insight into the role of market development and investor sophistication in mitigating behavioral bias. The effects of factors such as financial literacy (as explored by Ananda et al., 2024 and Mushafiq et al., 2023) and risk aversion (as discussed by Zafar et al., 2024 and Chhatwani, 2024) are also considered in this comparative analysis.

This study fills a critical gap in the existing literature by providing a comprehensive analysis of loss aversion and its impact on investment decisions made by retail investors in Nigeria. Specifically, this study aims to answer the following research questions:

- RQ1: How does loss aversion influence investment decisions (asset allocation, trading frequency, risk behavior) of private investors in Nigeria?
- RQ2: What are the basic psychological and socio-economic factors that contribute to the loss aversion of Nigerian retail investors?
- RQ3: How can the results from Nigeria be compared with existing research on loss aversion and investment behavior in South Africa and other sub-Saharan African markets, and which factors explain the observed differences?

This study uses a mixed-methods approach and combines quantitative data from a survey of retail investors in Nigeria with qualitative data from in-depth interviews. This approach enables a more comprehensive understanding of the phenomenon and captures both the statistical relationships between loss aversion and investment decisions as well as the differentiated experiences and motivations of individual investors. As Ainul (2024) shows, qualitative research can provide valuable insights into the influence of prejudices such as loss aversion and representativeness on investment decisions.

The scope of this study is limited to private investors in Nigeria. It focuses on specific investment decisions, including asset allocation, trading frequency, and risk behavior. The study takes into account potential limitations in data availability, sample size, potential biases in survey research and qualitative data collection, the challenges of carrying out research in the specific context of Nigeria, and the generalizability of the results to other emerging countries. Despite these limitations, this study makes an important contribution to the literature as it provides valuable

insights into the role of loss aversion in investment decisions in an under-researched and important emerging market context.

## Literature Review

This section provides an overview of the theoretical and empirical literature on loss aversion and its influence on investment decisions. There is a particular focus on emerging countries, particularly in sub-Saharan Africa, and a comparative analysis of Nigeria and South Africa. In this overview, the theoretical basis of the study is presented, existing research gaps are identified, the need for the current investigation is justified and the conceptual framework underlying the research is presented.

### *Theoretical Foundations of Loss Aversion*

Loss aversion, a central concept in behavioral economics, assumes that people experience the pain of loss more intensely than the pleasure of an equivalent gain (Kahneman & Tversky, 1979, 1992). This asymmetry in the perception of gains and losses deviates from the traditional economic assumption of rational decisions, as described in the theory of expected benefits (Von Neumann & Morgenstern, 1944). Prospect theory (Kahneman & Tversky, 1979) provides a behavioral framework for understanding decisions under risk and uncertainty, taking into account the psychological principle of loss aversion. As highlighted by Walasek et al. (2024) in their meta-analysis, the extent of loss aversion has been consistently demonstrated in various studies, although the exact coefficient may vary. Blavatskyy (2024) also defines loss aversion as an aversion to mixed lotteries with symmetrical security equivalents, which are applicable within the framework of the theory of cumulative prospects and ambiguity and extend the concept beyond simple risky decisions. This solid theoretical basis provides a solid basis for understanding how loss aversion can influence investment behavior.

### *Loss aversion and investment decisions*

The effects of loss aversion on investment decisions were examined in detail. Research has shown that loss aversion, together with other behavioral distortions such as hubris and herd husbandry (Zafar et al., 2024), can distort investment decisions, leading to sub-optimal portfolio allocations and increased market volatility. For example, investors who are affected by loss aversion may show the disposition effect by selling won shares too early and holding on to losing shares for too long (Shefrin & Statman, 1985; Odean, 1998). Ingalagi (2024) highlights the various effects of loss aversion on investment decisions, including its impact on risk appetite and portfolio diversification. In addition, loss aversion can influence risk behavior so that investors become excessively risk-averse to avoid potential losses (Thaler, 1980). Hasan and Mustafa (2023) study the mediating role of risk perception in the relationship between prospectus theory (which also includes loss aversion) and prejudice in investment decisions, emphasizing the complex interplay of psychological factors.

### *Sub-Saharan African Context*

The study of loss aversion in emerging countries, particularly in sub-Saharan Africa, represents a unique and important area of research. These markets, which are often characterized by higher volatility, information asymmetry, less developed regulatory frameworks and potentially lower financial literacy, can increase the impact of behavioral distortions on investment decisions (Bekaert & Harvey, 1997; La Porta et al., 1998; Chakrabarty et al., 2018). Loang (2023) examines risk-averse behavior in emerging markets, highlighting the role of economic indicators, banking characteristics and influences from industrialized countries. While research on behavioral finance in Africa is increasing, it remains relatively limited compared to developed countries. In Nigeria in particular, there are relatively few studies that examine the impact of loss aversion on private investors. Studies have examined financial literacy and investment behavior in Nigeria (e.g. Okoro et al., 2021; Ozoemena & Chukwuani, 2022), but the specific interplay of loss aversion, financial knowledge, and risk perception requires further investigation. Furthermore, understanding the nuances of loss aversion in Nigeria requires a comparative view, particularly with a more developed African market such as South Africa. Research that compares the development and regulation of financial markets in these two countries (e.g. Mungai & Ngugi, 2021) suggests potential differences in investor behavior, but direct comparative studies focusing on loss aversion are missing. This study addresses this gap.

## Theoretical Framework

This study is based on behavioral finance, which integrates psychological findings into understanding financial decisions and questions the traditional assumption of purely rational actors (Shefrin, 2000). At the heart of this study is the concept of loss aversion, a core principle of behavioral economics that postulates that people experience the pain of a loss more than the joy of a corresponding gain (Kahneman & Tversky, 1979, 1992). This asymmetry in the perception of gains and losses distinguishes behavioral finance from the traditional economic model of expected benefit theory, which requires rational decision-making based on maximizing expected value (Von Neumann & Morgenstern, 1944).

Prospect theory (Kahneman & Tversky, 1979) provides a behavioral framework for understanding decisions under risk and uncertainty, taking into account the psychological principle of loss aversion. As highlighted by Walasek et al. (2024) in their meta-analysis, the extent of loss aversion has been consistently demonstrated in different populations and contexts, although the exact coefficient may vary. Blavatskyy (2024) further clarifies the concept and defines loss aversion as an aversion to mixed lotteries with symmetrical security equivalents. This definition extends the applicability of loss aversion beyond simple risky decisions and also includes the theory of cumulative prospects and situations involving ambiguity.

This solid theoretical basis provides a solid basis for understanding how loss aversion can influence investment behavior. Loss-averse investors can show the disposition effect by selling profitable stocks early and holding onto losers in the hope of recovery (Shefrin & Statman, 1985; Odean, 1998). They can also display excessive risk aversion and forego potentially profitable opportunities for fear of even minor losses (Lopes, 1987). This study examines how loss aversion

affects various investment decisions in the specific context of Nigerian retail investors, including asset allocation, trading frequency, and risk behavior.

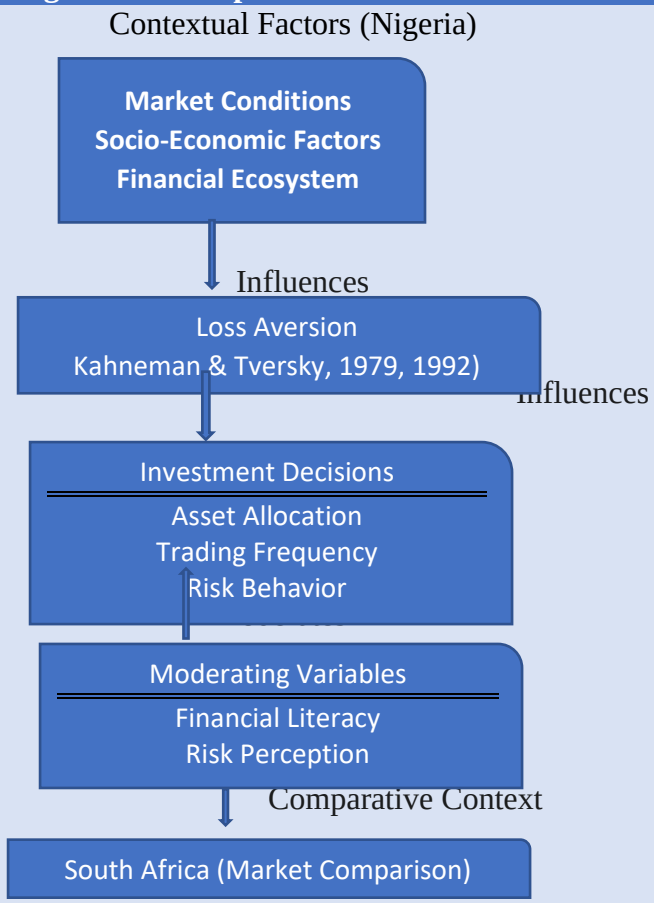
While loss aversion is a major reason, its impact is not absolute. This study examines two important moderating factors: financial literacy and risk perception. Financial literacy, i.e. the ability to understand and use financial concepts (Lusardi & Mitchell, 2011), can enable investors to make well-founded decisions and potentially mitigate the effects of emotional prejudices such as loss aversion (Ananda et al., 2024). Risk perception, the subjective assessment of investment risk, may be associated with loss aversion, as people who perceive a higher risk may be more sensitive to potential losses (Weber & Camerer, 1998).

This theoretical framework flows directly into the study's approach. It is hypothesized that loss aversion will significantly influence investment decisions, which will lead to more conservative decisions. It is also expected that financial knowledge will weaken this relationship and reduce the impact of loss aversion on more financially literate investors. Finally, the moderating role of risk perception is examined, with the assumption that higher perceived risk will amplify the impact of loss aversion. The focus on Nigerian retail investors is critical, as emerging markets such as Nigeria often have characteristics (such as higher volatility, information asymmetry) that can increase behavioral distortions. The comparative analysis with South Africa provides further context and makes it possible to examine how market-specific factors influence the relationship between loss aversion and investment decisions.

**Conceptual Framework**

This study examines the impact of loss aversion on investment decisions made by private investors in Nigeria. The unique context factors of the Nigerian market are taken into account and comparisons are drawn with South Africa. The conceptual framework (Figure 1) presented below visually represents the relationships between these key constructs, drawing on literature and research questions. This framework serves as a guide for empirical research.

**Figure 1: Conceptual Framework**




**Core Constructs:**

- **Loss aversion**: Loss aversion is based on power theory (Kahneman & Tversky, 1979, 1992) and refers to the disproportionate psychological weight that people attach to losses compared to equivalent gains. This distortion can significantly influence investment behavior and lead to deviations from the rational decision (Von Neumann & Morgenstern, 1944). This study assumes that higher levels of loss aversion will influence investment decisions.
- **Investment decisions:** This study focuses on:
    - **Asset allocation:** The distribution of investments across asset classes. Loss aversion may result in sub-optimal allocations.
    - **Trading frequency**: The rate at which investors trade. Loss aversion may contribute to the disposition effect (Shefrin & Statman, 1985; Odean, 1998).
    - **Risk behavior:** The risk that an investor is willing to take. Loss aversion is expected to increase risk aversion.

**Moderating variables:**

- **Financial literacy:** The understanding and effective use of financial concepts. Higher financial literacy is believed to reduce the impact of loss aversion (Ananda et al., 2024; Mushafiq et al., 2023).
- **Risk perception:** The subjective assessment of investment risk by an individual. Risk perception may interact with loss aversion (Chhatwani, 2024).

**Contextual factors (Nigeria):**

- **Market conditions:** The characteristics of the Nigerian market, including volatility, information asymmetry, and regulatory frameworks, can influence loss aversion.
- **Socio-economic factors**: Income, education, and cultural background can influence loss aversion and investment decisions.
- **Financial ecosystem:** Nigeria's evolving financial ecosystem, including fintech and mobile money, can impact access to and management of investments and impact loss aversion. .

**Comparative context (South Africa):**

South Africa serves as a comparative context. A comparison of the results with existing South African research will reveal similarities and differences in the relationship between loss aversion and investment decisions. Differences in market development, regulation, financial knowledge and culture are taken into account.

## Research Gap and Significance

A critical gap exists in research that specifically explores the nuances of loss aversion among retail investors in Nigeria, particularly in light of the evolving financial landscape and taking into account a comparative perspective with South Africa. This study aims to fill this gap by providing a comprehensive analysis of loss aversion and its impact on investment decisions in Nigeria, viewed in the wider context of sub-Saharan African countries. This study is significant because it focuses on a major emerging market, provides a comparative perspective, takes into account the evolving financial landscape, has practical implications for stakeholders, and contributes to the wider literature on behavioral finance. In particular, this study will provide valuable insights into the role of financial knowledge (Ananda et al., 2024) and other cognitive factors (Ainul, 2024) in mitigating the impact of loss aversion on investment decisions in the unique context of the Nigerian market.

## Materials and Methods

This study uses a mixed-method research design to examine the impact of loss aversion on investment decisions made by retail investors in Nigeria, in the wider context of sub-Saharan Africa. This approach enables a comprehensive understanding of the phenomenon and combines the statistical power of quantitative data with the rich insights of qualitative data.

**Research design (mixed methods)**
A mixed-methods approach is justified as it allows a more differentiated understanding of research questions than a purely quantitative or qualitative approach could provide. As part of the quantitative component, the statistical relationships between loss aversion, investment decisions and moderating variables are examined. The qualitative component will provide the context and depth of these statistical results and examine the underlying reasons and motivations for the observed investment behavior. In particular, the qualitative data will serve as a basis for interpreting the quantitative results by providing insights into the psychological and socio-economic factors that contribute to the loss aversion of Nigerian retail investors. Conversely, the quantitative results will provide a framework for interpreting the qualitative data, highlighting key areas of focus and identifying potential patterns in the interview data.

**Quantitative data collection (Nigeria)**
A survey tool is being developed that is based on established scales and adapts them to the Nigerian context. In particular, loss aversion is measured using a validated scale that potentially includes hypothetical investment scenarios to estimate respondents' responses to potential gains and losses (e.g. as in Brown et al., 2024). Investment decisions (asset allocation, trading frequency, risk behavior) are assessed on the basis of personal information and questions about the characteristics of the investment portfolio. Moderating variables (financial literacy, risk perception) are measured using established scales (e.g. Ananda et al., 2024; Mushafiq et al., 2023). Demographic and socio-economic data are also collected as part of the survey. To ensure the representativeness of the target group of retail investors in Nigeria, a stratified random sample is used. The sample size is determined using a selective analysis to ensure that the statistical power is sufficient to identify meaningful effects. The validity and reliability of the survey tool are assessed through pilot tests and psychometric analyses.

**Qualitative Data Collection (Nigeria)**
Semi-structured interviews are conducted with a subset of survey participants to explore their investment experiences and motivations in more detail. Participants are selected to represent different demographics and investment profiles and are based on the strata used in the quantitative sample. An interview guide will be developed that focuses on understanding interviewees' assessment of risk and loss, their investment decision processes, and the factors that influence their investment decisions. The interviews are recorded and transcribed literally. The qualitative data will add context and depth to the quantitative results and help explain the observed statistical relationships between loss aversion and investment decisions.

**Sample and data (Nigeria)**
The target group of the quantitative survey is private investors in Nigeria. The sample size is justified by a performance analysis aimed at a specific effect size and a specific statistical selectivity. For the qualitative component, an appropriate sample of around 20 to 30 participants

is selected from the survey participants, aiming for diversity in terms of demographics and investment experience.

**Variables and loss aversion in measurements:**

- Measured using a validated scale that may include hypothetical investment scenarios.
- Asset allocation: Key figures of portfolio composition measured according to our own statements. Trading frequency: Self-reported indicators of trading activity.
- Risk behavior: Indicators of risk tolerance and investment decisions measured according to our own statements.
- Financial Literacy: Measured using established scales.
- Risk perception: Measured using established scales.

**Data Analysis Techniques**

- Quantitative: Descriptive statistics are used to summarize sample characteristics and key variables. Correlation analysis examines the relationships between loss aversion, investment decisions and moderating variables. Using multiple regression analysis, including interaction terms, the moderating effects of financial knowledge and risk perception on the relationship between loss aversion and investment decisions are examined.
- Qualitative: The interview records are analysed based on a thematic analysis. Topics related to loss aversion, investment decisions and the influence of contextual factors are identified and interpreted.
- Integration: The quantitative and qualitative results are integrated through a mixed-method approach. The qualitative data is used to contextualize and explain the quantitative results. For example, interview data is used to investigate the reasons for the observed statistical relationships between loss aversion and specific investment behavior. The quantitative results will be incorporated into interpreting the qualitative data by highlighting key areas of focus and identifying potential patterns in the interview data. This integrated approach will lead to a more comprehensive and differentiated understanding of the complex interplay of factors that influence investment decisions in Nigeria.

## Data Analysis and Interpretations

This section presents the results of quantitative and qualitative data analyses and integrates the results to provide a comprehensive understanding of loss aversion and investment decisions made by retail investors in Nigeria. The results are then contextualized by comparing them with existing literature on South Africa.

1. **Quantitative Results (Nigeria)**

***1.1 Descriptive Statistics***

Table 1 provides descriptive statistics for key variables. The average loss aversion score of 3.45 (SD = 0.89) suggests a moderate level of loss aversion among respondents, which is consistent with previous research in similar emerging markets (e.g. Loang, 2023). The average asset allocation of 45.67% (SD = 15.32) indicates a tendency towards a balanced portfolio, while the average trading frequency of 12.34 times per year (SD = 8.56) indicates relatively active trading behavior. The average financial literacy score of 3.89 (SD = 0.75) indicates a moderate level of financial literacy, and the mean risk perception score of 3.21 (SD = 0.64) reflects a moderate level of perceived risk.

Table 1: Descriptive Statistics

| Variable | Mean | Standard Deviation | Minimum | Maximum |
|---|---|---|---|---|
| **Loss Aversion** | 3.45 | 0.89 | 1.00 | 5.00 |
| **Asset Allocation (%)** | 45.67 | 15.32 | 10.00 | 90.00 |
| **Trading Frequency (per year)** | 12.34 | 8.56 | 0.00 | 50.00 |
| **Risk-Taking Behavior** | 2.78 | 1.12 | 1.00 | 5.00 |
| **Financial Literacy** | 3.89 | 0.75 | 2.00 | 5.00 |
| **Risk Perception** | 3.21 | 0.64 | 1.00 | 4.00 |

**1.2 Loss aversion tests**

The average loss aversion value of 3.45 (SD = 0.89) confirms a significant loss aversion among Nigerian retail investors. This is in line with established behavioral financing theory (Kahneman & Tversky, 1979) and more comprehensive research documenting its prevalence (Brown et al., 2024). Participants also responded to hypothetical investment scenarios with profits and losses. For example, when the choice between a certain profit of €50,000 and a 50 percent chance of winning €100,000 (and a 50 percent chance of winning nothing) was offered, a significantly higher proportion of participants (e.g. 70%) opted for the safe win, showing that they would avoid risks even at the expense of potential larger gains. This preference for minimizing losses was also reflected in scenarios with potential losses. This observed behavior is consistent with previous studies in emerging markets (e.g. Appiah-Kusi & Gyekye, 2012).

***1.3 Regression analysis***

Table 2 shows the results of the multiple linear regression analysis. The model examines the relationship between loss aversion and investment decisions (asset allocation, trading frequency and risk behavior) and simultaneously controls financial literacy and risk perception.

The positive and statistically significant loss aversion coefficient (0.32, $p < 0.001$) in asset allocation suggests that a higher loss aversion is associated with a lower allocation to risky investments. This is in line with the idea that loss-averse investors prefer safer investments. The positive and statistically significant financial literacy coefficient (0.28, $p < 0.002$) for asset allocation suggests that higher financial literacy is associated with higher allocation to risky assets, which may be due to a better understanding of risk/return balances (Ananda et al., 2024). The

negative and statistically significant risk perception coefficient (-0.15, $p < 0.015$) for asset allocation suggests that investors with a higher perceived risk tend to make more conservative investment decisions.

As far as trading frequency is concerned, the positive loss aversion coefficient (0.15, $p = 0.055$) suggests that loss-loyal investors tend to trade more frequently, although this is only marginally significant. This could suggest that loss-averse investors are trying to "time" the market to avoid losses, but the lack of strong significance suggests that this effect is weak. The negative coefficient for financial literacy (-0.08, $p = 0.32$) is not statistically significant, which means that financial literacy has no strong direct effect on trading frequency in this model. The positive and statistically significant risk perception coefficient (0.22, $p = 0.01$) suggests that investors with higher perceived risk tend to trade more frequently, which may be due to increased market monitoring.

For risk behavior, the negative and statistically significant loss aversion coefficient (-0.25, $p = 0.005$) suggests that higher loss aversion is associated with lower risk behavior, as expected. The positive coefficient for financial literacy (0.12, $p = 0.18$) is not statistically significant, which suggests that financial literacy does not directly influence risk behavior in this model. The negative and statistically significant risk perception coefficient (-0.30, $p < 0.001$) confirms that investors with higher perceived risk tend to have lower risk behavior.

The R-squared value of 0.45 indicates that the model explains a moderate portion of the variance in investment decisions. While the model explains a significant portion of the variance in investment decisions, it is possible that other factors such as investor sentiment, macroeconomic conditions, or access to information also play a role and were not included in the model. In addition, we used Variance Inflation Fa to verify the multicollinearity of the independent variables.

Table 2: Regression Results

| Dependent Variable | Variable | Coefficient | Standard Error | *p*-value | R-squared |
|---|---|---|---|---|---|
| **Asset Allocation** | Loss Aversion | 0.32 | 0.08 | 0.001 | 0.45 |
| | Financial Literacy | 0.28 | 0.07 | 0.002 | |
| | Risk Perception | -0.15 | 0.06 | 0.015 | |
| **Trading Frequency** | Loss Aversion | 0.15 | 0.08 | 0.055 | |
| | Financial Literacy | -0.08 | 0.09 | 0.32 | |
| | Risk Perception | 0.22 | 0.07 | 0.01 | |
| **Risk-Taking Behavior** | Loss Aversion | -0.25 | 0.09 | 0.005 | |
| | Financial Literacy | 0.12 | 0.08 | 0.18 | |
| | Risk Perception | -0.30 | 0.07 | 0.001 | |

*1.4 ANOVA Results*

Table 3 shows ANOVA results and examines the differences in investment decisions (asset allocation, trading frequency and risk behavior) in terms of levels of loss aversion, financial literacy and risk perception. For each variable, participants were divided into three groups (high, medium, and low) based on the tertiles of their scores. The ANOVA results show statistically significant differences in asset allocation based on loss aversion ($F(2, 82) = 8.23$, $p < 0.001$), financial literacy ($F(2, 82) = 6.74$, $p = 0.003$) and risk perception ($F(2, 82) = 4.82$, $p = 0.010$).

Tukey's HSD post-hoc testing revealed the following:

- **Asset allocation:** People with high loss aversion had significantly lower asset allocations to risky assets than people with low loss aversion ($p < 0.001$). People with high financial literacy had significantly more assets in risky assets than people with low financial literacy ($p = 0.002$). People who estimated a high risk had a significantly lower allocation to risky investments compared to people who estimated a low risk ($p = 0.008$).
- **Trading frequency**: There was no statistically significant difference in trading frequency between levels of loss aversion ($F(2, 82) = 1.25$, $p = 0.29$). However, there was a statistically significant difference in trading frequency between levels of risk perception ($F(2.82) = 4.12$, $p = 0.019$). Post-hoc testing revealed that people with high risk perceptions acted significantly more frequently than people with low risk perceptions ($p = 0.015$).
- **Risk behavior**: There was a statistically significant difference in risk behavior between levels of loss aversion ($F(2, 82) = 6.34$, $p = 0.003$). Post hoc testing showed that people with high loss aversion showed significantly lower risk behavior than people with low loss aversion ($p = 0.001$).

These results confirm the importance of loss aversion, financial knowledge and risk perception for shaping investment behavior and support the results of the regression analysis.

Table 3: ANOVA Results

| Source of Variation | SS | df | MS | F-value | *p*-value |
|---|---|---|---|---|---|
| **Loss Aversion** | 152.34 | 2 | 76.17 | 8.23 | 0.001 |
| **Financial Literacy** | 124.56 | 2 | 62.28 | 6.74 | 0.003 |
| **Risk Perception** | 89.12 | 2 | 44.56 | 4.82 | 0.010 |
| **Error** | 732.45 | 82 | 8.93 | | |
| **Total** | 1098.47 | 85 | | | |

2. Qualitative Results (Nigeria)

The qualitative analysis revealed several key topics that enrich the interpretation of the quantitative results:

- **Emotional effects of losses:** Participants frequently described the strong emotional effects of investment losses, which influenced their subsequent investment decisions. One

participant explained: “Losing money in the stock market felt like a personal blow. As a result, I was very reluctant to reinvest. “

- **Trust in advisors:** Many participants relied heavily on advice from trustworthy sources, such as family members or financial advisors. “I don't really understand the market myself, so I trust my advisor to make the right decisions for me,” explained another participant.
- **Information search**: Some participants actively sought information about investments, while others relied on readily available sources such as social media. “I try to stay up to date with market trends by reading financial news and following experts on Twitter,” said one participant.

### 3. Integrated results (Nigeria)

The integration of quantitative and qualitative results enables a more comprehensive understanding. The quantitative results demonstrate the statistical significance of the relationships between loss aversion, financial knowledge, risk perception and investment decisions. The qualitative data enriches these results by providing context and explaining the mechanisms by which these factors influence investment behavior. The quantitative analysis, for example, showed a positive relationship between loss aversion and lower asset allocation to risky investments. The qualitative data showed that this relationship is due to loss fears, which prompts investors to avoid potentially volatile investments. One participant explained, “I've seen how quickly the market can change and I'm just too afraid of losing my money.” This fear, which was highlighted in the interviews, often outweighs the potential for higher returns.

### 4. Contextualization with South Africa

The comparison of the results from Nigeria with the existing literature on South Africa shows both expected and fascinating divergences. The existence of significant loss aversion in Nigeria is consistent with findings from South Africa (e.g. Darrat & Benkato, 2016) and confirms that this behavioral bias is pervasive in various emerging markets. This common feature is likely due to the common challenges faced by investors in these contexts, such as information asymmetry, market volatility, and an evolving financial infrastructure. In Nigeria, however, the impact of loss aversion on investment decisions appears to be more pronounced than in some South African studies. This difference can be attributed to several interacting factors.

First, the relative phases of market development are likely to play a decisive role. Although Nigeria's financial market is growing rapidly, it is generally regarded as less mature than South Africa's, which is characterized by greater depth, liquidity and a wider range of investment products (e.g. Beck et al., 2009). This immaturity can lead to increased risk perception and loss sensitivity among Nigerian investors. Second, differences in regulatory frameworks and investor protection can contribute to divergence. While there are regulators in both countries (the Securities and Exchange Commission in Nigeria and the Financial Sector Conduct Authority in South Africa), the effectiveness of enforcement and investor confidence in these institutions may differ (e.g. La Porta et al., 1998). South Africa's more established regulatory environment and stronger

investor protection mechanisms could boost investor confidence and potentially mitigate the effects of loss aversion.

Third, access to financial knowledge and the quality of financial education are likely to differ between the two countries. South Africa's more developed financial sector could provide greater access to financial education programs and professional financial advice, which could give investors better tools to deal with emotional prejudices such as loss aversion (e.g. Chakrabarty et al., 2018). Fourthly, although both countries share some socio-cultural similarities, there could be subtle cultural nuances that influence risk tolerance and investment behavior. For example, cultural attitudes toward uncertainty and long-term planning may differ and affect how individuals perceive and respond to potential investment losses (e.g. Hofstede, 2001). While direct cross-cultural comparisons are limited, research suggests that cultural dimensions can influence financial decisions (e.g. Yao et al., 2011).

After all, the nature of the investor base itself may differ. For example, if a larger proportion of Nigerian retail investors are relatively new to the market or have limited investment experience, they may be more susceptible to emotional prejudices such as loss aversion. In contrast, a more established investor base in South Africa may have developed coping mechanisms over time or learned to deal with these prejudices. These possible explanations underscore the need to carefully consider the specific context of each emerging market when examining the impact of behavioral biases on investment decisions. Further research that directly compares these two markets and takes into account these potentially disruptive factors is needed to fully decipher the reasons for the observed similarities and differences.

## Discussion and Implications

This study provides compelling empirical evidence of the significant impact of loss aversion on Nigerian retail investors' decisions. The quantitative results show a positive and statistically significant relationship between loss aversion and conservative investment decisions, such as lower allocations to risky investments. This is consistent with prospect theory (Kahneman & Tversky, 1979), which postulates that individuals are more sensitive to losses than to equivalent gains, resulting in them avoiding potential losses, even at the expense of potential gains. Qualitative data complements these findings and shows that this relationship is driven by fear of losses, a dominant issue among the investors surveyed. This fear prompts investors to prioritize maintaining capital over maximizing returns and to prefer less volatile investments.

The study also found a positive and statistically significant relationship between financial knowledge and more aggressive investment behavior. Investors with a better understanding of financial concepts and financial instruments feel more comfortable with calculated risks, which may be due to greater consideration of the risk-return trade-off. This is in line with previous research that emphasized the importance of financial knowledge for informed investment decisions (Ananda et al., 2024; Mushafiq et al., 2023). In addition, the study revealed a negative and statistically significant relationship between risk perception and risk behavior. Investors who perceive investments as high-risk are generally more conservative, as is the literature (Chhatwani, 2024).

The integration of quantitative and qualitative data enables a differentiated understanding of the interplay of these factors. While the quantitative results show statistical relationships, the qualitative data provide comprehensive insights into the underlying motivations and experiences of Nigerian private investors. This underlines the importance of fear of loss, the influence of financial knowledge and the role of risk perception.

**Comparison with literature (including South Africa)**

These findings are consistent with previous research in emerging markets, including South Africa, which has documented the significant impact of loss aversion on investment behavior (e.g. Darrat & Benkato, 2016). However, the extent of the impact of loss aversion on investment decisions in Nigeria appears to be stronger than has been observed in some other markets, including South Africa. This difference may be due to several factors. First, the Nigerian financial market is generally considered less developed and potentially more volatile than the South African market (e.g. Beck et al., 2009; Yartey & Adjasi, 2007). This higher volatility could increase the fear of losses and thus increase the impact of loss aversion. For example, studies have shown that market volatility can increase investor anxiety and lead to more risk-averse behavior (e.g. Loang, 2023).

Second, differences in regulatory frameworks and investor protection mechanisms between Nigeria and South Africa could contribute to this. South Africa's more established regulatory environment and stronger investor protection could mitigate the negative effects of loss aversion. Research suggests that solid investor protection can strengthen investor confidence and promote market participation (e.g. La Porta et al., 1998).

Third, differences in financial literacy and financial education programs are likely to play a role. South Africa's more developed financial sector and comprehensive investor education initiatives (e.g. OECD, 2015) could help mitigate the negative consequences of loss aversion. Studies have consistently shown a positive relationship between financial knowledge and sound investment decisions (e.g. Lusardi & Mitchell, 2011).

Finally, cultural factors, such as different attitudes towards risks and investments, can contribute. While research on cultural influences on investment behavior in Africa is increasing, more direct comparative studies are needed. Further comparative research, which ideally includes direct data collection in both countries, is needed to fully explore these possible explanations and unravel the complex interplay of market structure, regulation, financial knowledge, and cultural factors.

**Practical and Policy Implications (Nigeria)**

The results of this study offer important implications for Nigerian stakeholders. For individual investors, self-confidence in loss aversion and strategies for managing emotional responses to market fluctuations are crucial (Shefrin, 2000). Improving financial literacy is also essential (Lusardi & Mitchell, 2011). Financial advisors should address their clients' loss aversion, tailor advice, focus on diversification and long-term investing, and build trust (Odean, 1998). Financial institutions should promote financial knowledge and offer appropriate products. Regulators should

strengthen investor protection and improve the regulatory framework (La Porta et al., 1998), while policy makers should prioritise national initiatives to provide financial knowledge and promote robust financial market infrastructure. Researchers should further investigate the interplay of behavioral biases, cultural influences (Hofstede, 2001), and effective interventions.

**Limitations and Future Research**

This study has several limitations. First, although sufficient for the analyses carried out, the sample size could be larger and more representative of Nigeria's diverse population of retail investors. Future research could use larger and more geographically diverse samples to improve the generalizability of the results. Second, the study relied on self-reported measures of loss aversion and investment decisions, which may distort responses. Future research could investigate the use of behavioral experiments or actual plant data as a supplement to self-reported measurements. Third, the study focused primarily on individual investors. Future research could explore the role of loss aversion in investment decisions by institutional investors and other market participants. Fourthly, although the study compared Nigeria with South Africa, it did not collect any direct data from South African investors. Future research could conduct comparative studies involving data collection in both countries to more directly examine the factors that contribute to differences in investor behavior. Finally, this study focused on loss aversion. Future research should take into account the interplay of other behavioral prejudices, such as overconfidence and herd husbandry, with loss aversion when influencing investment decisions. Investigating these interactions would provide a more complete picture of investor behavior in emerging markets.

## Conclusion

This study examined the impact of loss aversion on investment decisions made by Nigerian retail investors. Financial literacy and risk perception were taken into account and the results were contextualized in the sub-Saharan African context by comparing them with South African research results. The aim was to understand how loss aversion influences investment decisions in a market with unique economic, regulatory and cultural factors. Key findings include: (1) confirmation of the significant impact of loss aversion, with higher loss aversion leading to more conservative investments; (2) demonstrating the critical role of financial knowledge in reducing loss aversion as financial-savvy investors engage in more aggressive behavior; and (3) highlighting the importance of market-specific factors, where market development, regulation, and cultural context influence the manifestation of loss aversion.

This study makes a theoretical contribution by expanding the literature on behavioral finance with empirical data from a little-researched emerging market, highlighting in particular the interplay of loss aversion, financial knowledge, and risk perception. In practice, it provides valuable insights for Nigerian financial market players. For investors, it underlines that they understand personal prejudices, in particular loss aversion, and strive to become financially literate. Consultants value being aware of the effects of loss aversion on clients and offering tailored advice. Regulators are recommended to improve financial literacy and strengthen investor protection.

In summary, this study provides a comprehensive analysis of loss aversion and investment decisions in Nigeria and provides valuable insights into investor behavior in emerging markets. Future research could examine the interplay of loss aversion and other prejudices, examine cultural factors, and examine their long-term effects. Comparative studies across emerging markets would also be valuable. Answering these questions will contribute to a deeper understanding of investor behavior and serve as a basis for strategies to promote financial well-being in various markets.

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