

THE MEDIATING ROLE OF RISK TOLERANCE ON THE RELATIONSHIP BETWEEN EMOTIONAL BIAS AND INVESTMENT DECISION OF PENSION FUND ADMINISTRATORS IN NIGERIA

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Abstract

Investment decision is very crucial in directly determining how an organization's resources are allocated, shaping its long-term finance, profitability and growth. As important as it is, investment decision made by managers on behalf of their organization may be susceptible to one form or more of emotional bias. This study examined influence of emotional behavioural biases on the investment decisions of Pension Fund Administrators (PFA's) in Nigeria, which can lead to suboptimal strategies, compounded by risk tolerance. Drawing on behavioural finance theories, the study addresses how emotional biases—regret-aversion, status-quo bias, self-control bias — affect institutional decision-making within the pension fund sector. Using Survey research design, data were collected from licensed PFAs operating in Nigeria. Structural Equation Modeling (SEM) was employed to analyze the direct and mediated relationships between behavioural biases, risk tolerance, and investment outcomes. The findings reveal Regret Aversion and Status-Quo Bias are significant; while Self Control Bias is insignificant on Investment Decisions of PFA's in Nigeria. In addition, the mediating effect of risk tolerance on Regret Aversion and Status-Quo Bias was significant, Self Control Bias was insignificant. Based on these findings, this study highlights the critical role of risk tolerance in PFA's mitigating these effects, better adaptability to market conditions and improved decision-making, even in the presence of emotional biases. These findings offer valuable insights for policymakers, financial advisors, and institutional investors aiming to improve the efficiency and resilience of pension fund management in Nigeria.

Keywords: Risk Tolerance, Emotional Bias, Investment, Behavioural Bias, Pension Fund Administrator.

1.0 Introduction:

The study investigates the impact of emotional behavioural biases on the investment decisions of Pension Fund Administrators (PFAs) in Nigeria, focusing on the mediating role of risk tolerance. The rationale stems from the critical function PFAs play in mobilizing and allocating substantial pension assets—over ₦23.26 trillion as of early 2025—into various sectors of the Nigerian economy (PENOP, 2025).

Investment decisions are essential for long-term financial sustainability, as they determine how financial resources are allocated. Scholars like Kremer (2023) and Ross et al. (2013) have emphasized the importance of strategic resource allocation, balancing risk, and optimizing returns. However, while traditional finance assumes rational decision-making, behavioural finance highlights how emotional biases like regret-aversion, status-quo bias, and self-control bias can lead to suboptimal outcomes (Bihari et al., 2022).

For example, regret-aversion can cause investors to avoid decisions that may later be regretted, often leading to premature exits from investments during market downturns (Elhussein & Abdelgadir, 2020). Similarly, status-quo bias makes investors cling to existing positions due to fear of change, while self-control bias leads them to favour short-term gains over long-term goals (Sripada, 2022). These emotional responses compromise rational assessments and strategic foresight in investment.

PFAs in Nigeria are subject to stringent regulatory oversight, but they still face challenges including political instability, market volatility, and inflation. Despite reforms, many pensioners remain financially insecure, highlighting inefficiencies in investment strategies and the broader pension system (Ajadi, 2024; Adebayo, 2023). The study therefore emphasizes understanding how emotional biases impact investment decision-making and how risk tolerance can moderate these effects, potentially leading to improved portfolio management and outcomes for retirees (Amaefule, 2021).

The study aims to close a notable research gap by focusing on institutional rather than retail investors, particularly in a developing economy context. It also adds value by using a mediating—not moderating—approach to risk tolerance, offering a nuanced perspective on how PFAs can navigate behavioural tendencies in volatile markets (Ayaa et al., 2022; Wangzhou et al., 2021).

The study focuses on examining how emotional biases—specifically regret-aversion, status-quo, and self-control biases—impact the investment decisions of Pension Fund Administrators (PFAs) in Nigeria, with risk tolerance serving as a mediating variable. It is limited to licensed PFAs in Nigeria, providing insights into institutional investment behaviour within the Nigerian pension sector.

2.0 Literature Review:

2.1 Emotional Biases and Investment Decisions

Emotional biases are non-rational tendencies that stem from psychological responses to uncertainty, risk, and investment outcomes. They occur when decisions are made based on feelings rather than objective data. Among institutional investors such as Pension Fund Administrators (PFAs), emotional biases can significantly influence portfolio decisions, leading to suboptimal investment outcomes (Bihari et al., 2022).

Regret-aversion bias is one of the most prominent emotional biases affecting PFAs. Investors experiencing regret-aversion tend to avoid decisions that may cause future remorse, often leading to premature asset liquidation during market volatility or missed investment opportunities (Elhussein & Abdelgadir, 2020). This behaviour is rooted in the desire to avoid the emotional discomfort of bad outcomes—even if the statistical likelihood is low. Status-quo bias manifests as a preference for maintaining current positions rather than making changes, regardless of the potential benefits of those changes. This can lead to passivity among PFAs, where they cling to underperforming portfolios rather than reassessing and rebalancing investments (Godefroid et al., 2022). Baulkaran and Jain (2024) noted that status-quo bias is often driven by inertia and loss aversion, particularly in conservative institutional settings.

Self-control bias refers to an investor's struggle to resist immediate gratification in favour of long-term benefits. For PFAs, this bias may drive the prioritization of liquidity or short-term yields over more strategic, long-term investments that could better serve pensioners (Sripada, 2022). This behaviour can compromise retirement fund growth and sustainability. Collectively, these biases demonstrate how emotional influences can undermine rational decision-making in institutional investment management.

2.2 Mediating Role of Risk Tolerance

Risk tolerance is defined as an investor's willingness and ability to endure losses in pursuit of returns. It serves as a crucial mediating factor in the relationship between emotional biases and investment decisions. While emotional biases may trigger irrational tendencies, a high level of risk tolerance can moderate or weaken these effects (Raheja & Dhiman, 2020).

For instance, a risk-tolerant PFA is less likely to succumb to regret-aversion during a market downturn, opting instead for a long-term view that could yield future gains. Conversely, a low-risk-tolerant PFA might panic and retreat to conservative assets, amplifying the impact of emotional decision-making (Ayaa et al., 2022). Similarly, those with high risk tolerance may overcome status-quo tendencies by actively rebalancing portfolios based on data, rather than emotion. This mediating role goes beyond traditional perspectives that consider risk tolerance as a mere control or moderating variable. It allows researchers to explore how risk attitudes can directly alter the pathway between bias and behaviour (Ankki, 2023). This adds depth to behavioural finance models and offers valuable insights for improving institutional investment strategy.

2.3 Theoretical Framework: Prospect and Disappointment Theories

This study is grounded in the behavioural finance theory that explain how emotional responses affect financial decision-making: Disappointment Theory. Disappointment Theory (Loomes & Sugden, 1986) provides explanations by suggesting that people prefer to avoid outcomes that may fall below expectations—even if they are rationally sound. This theory provides a deeper understanding of regret-aversion bias among institutional investors, who may fear disappointing stakeholders or pension contributors through poor investment outcomes (Baulkaran & Jain,

2024). This theory offer a comprehensive foundation for examining how emotional biases influence investment choices, and how risk tolerance can mediate these effects.

2.4 Empirical Studies on Emotional Bias and Risk Tolerance

Empirical research has consistently validated the role of emotional biases in shaping institutional investment decisions. Elhoussein and Abdelgadir (2020) demonstrated that regret-aversion leads investors to exit profitable positions too early, especially in volatile markets. Godefroid et al. (2022) found that status-quo bias prevented pension fund managers from adjusting asset allocations, even when superior alternatives existed. Sripada (2022) revealed that self-control bias reduces the likelihood of long-term investment planning, pushing PFAs toward highly liquid but less profitable assets. Ayaa et al. (2022) provided strong evidence that risk tolerance mediates the effects of emotional biases, with high-risk-tolerant investors showing greater resilience to these biases. Ankki (2023) highlighted the importance of incorporating risk tolerance into behavioural models to better understand institutional investor behaviour in developing economies. These studies reinforce the argument that understanding and managing emotional biases—and the role of risk tolerance—can lead to better investment performance and financial outcomes for pension contributors.

This study employs a model that is distinctive for its focus solely on emotional biases, and its application to institutional investors in Nigeria. The use of a mediating framework is novel and has made it a valuable contribution to both academic research and practical policy development in the pension fund sector. To achieve this, the following hypothesis will be tested to provide empirical conclusions.

- H1 – H3** – Regret-aversion, Status-Quo bias, Self-Control bias does not significantly affect investment decision of PFA's in Nigeria.
- H4** – Risk Tolerance does not significantly affect investment decision of PFA's in Nigeria.
- H5 – H7** – Risk Tolerance does not mediate the relationship between regret-aversion, status-quo bias, self-control bias and investment decision of PFA's in Nigeria.

3.0 Data and Methodology:

The study adopted a quantitative research approach using a survey research design to investigate the influence of emotional biases on the investment decisions of Pension Fund Administrators (PFAs) in Nigeria, with risk tolerance as a mediating variable. This design allowed the researcher to collect quantifiable data directly from respondents and analyze relationships among variables using statistical tools. The target population consisted of all 22 licensed PFAs in Nigeria, as recognized by the National Pension Commission (PenCom). A purposive sampling technique was applied, focusing on key decision-makers such as investment managers, portfolio analysts, and compliance officers within each PFA. The study aimed for robust representation across the industry to enhance the validity of findings related to institutional investor behaviour.

A structured questionnaire was used as the primary instrument for data collection. Emotional biases were measured using previously validated scales. Regret-Aversion Bias: Items measured avoidance of investment decisions that may later result in regret (adapted from Elhoussein & Abdelgadir, 2020). Status-Quo Bias: Items assessed preferences for maintaining current investment positions despite potential benefits of change (based on Godefroid et al., 2022). Self-Control Bias: Questions evaluated tendencies to prioritize short-term returns over long-term

financial goals (adapted from Sripada, 2022). Risk tolerance and investment decision were also measured using validated scales. All items used a seven-point Likert scale (ranging from strongly disagree to strongly agree).

A pilot study was conducted to refine the instrument. Cronbach's Alpha values for emotional bias constructs ranged from 0.71 to 0.84, indicating acceptable internal consistency. Construct validity was confirmed through factor analysis, and the measurement model met the criteria for convergent and discriminant validity. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). This method is suitable for predictive modeling and testing complex relationships, including mediation effects. The analysis focused on the direct effects of emotional biases on investment decisions; and the mediating effects of risk tolerance.

4.0 Result and Discussion:

Table 4.1: Demographic profile of the respondents: Frequency Distribution (106)

Gender	Frequency	Percentage
Male	98	92.45
Female	8	7.55
Total	106	100.00
Highest Qualification	Frequency	Percentage
HND/BSC/BA	66	62.26
MSC	27	25.47
PHD	13	12.26
Total	106	100.00
Position	Frequency	Percentage
Senior Manager	22	20.75
Manager	36	33.96
CEO/Director	38	35.85
Others	10	9.43
Total	106	100.00
Professional body	Frequency	Percentage
Yes	88	83.02
No	18	16.98
Total	106	100.00

Researchers Study, 2024.

The Preliminary analysis showed that PFAs exhibited moderate to high levels of emotional bias, with status-quo bias being the most prominent. This reflects institutional inertia and conservative investment practices. Regret-aversion was also prevalent, particularly among PFAs managing large asset portfolios under regulatory scrutiny. In Measurement Model Evaluation, the reflective measurement model confirmed that emotional bias indicators had strong factor loadings (> 0.6), composite reliability (> 0.7), and average variance extracted ($AVE > 0.5$), confirming model robustness.

As can be seen in Table 4.2, all items with lower loadings were removed from the analysis due to some measurement issues, all other indicators have loadings of 0.60 indicating items reliability in measuring their respective reflective latent constructs. Removing items with factor loadings below 0.60 is necessary to ensure measurement reliability, convergent validity, and internal

consistency, as weak indicators can distort construct validity and model fit in Structural Equation Modeling (SEM) (Hair et al., 2019).

Table 4.2: Item Loadings, Internal Consistency, and Average Variance Extracted

Constructs	Indicators	Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Investment Decision	ID1	0.89	0.92	0.95	0.87
	ID2	0.95			
	ID3	0.95			
Regret Aversion Bias	RAB1	0.85	0.92	0.94	0.76
	RAB2	0.87			
	RAB3	0.91			
	RAB4	0.90			
	RAB5	0.83			
Risk Tolerance	RT2	0.90	0.85	0.91	0.77
	RT3	0.89			
	RT5	0.83			
Self-Control Bias	SCB1	0.90	0.90	0.93	0.76
	SCB2	0.87			
	SCB3	0.87			
	SCB4	0.86			
Status-Quo Bias	SQB1	0.92	0.89	0.93	0.82
	SQB2	0.93			
	SQB3	0.88			

Researchers Study, 2024

The Structural Model and Hypotheses Testing showed that Regret-aversion bias had a significant negative effect on investment decision-making, confirming that fear of future regret leads PFAs to act cautiously. Status-quo bias also showed a significant negative influence, indicating resistance to portfolio changes even when beneficial. Self-control bias, however, had an insignificant effect, suggesting PFAs may already employ professional mechanisms to mitigate impulsive behaviours. Similarly, Risk tolerance significantly mediated the relationships between Regret-aversion bias and investment decision; and Status-quo bias and investment decision.

This confirms that PFAs with higher risk tolerance were better able to neutralize emotional influences and make rational investment choices. However, risk tolerance did not significantly mediate the relationship between self-control bias and investment decisions, further suggesting that other mechanisms may already regulate self-control tendencies.

Table 4.3: Hypotheses Test

Relationship	Beta Values	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Regret Aversion Bias -> Investment Decision	-0.09	0.04	2.32	0.02
Risk Tolerance -> Investment Decision	0.23	0.05	4.66	0.00
Self-Control Bias -> Investment Decision	0.09	0.06	1.54	0.12
Status-Quo Bias -> Investment Decision	0.14	0.06	2.42	0.02
Regret Aversion Bias-> Risk Tolerance -> Investment Decision	0.02	0.01	2.21	0.03
Self-Control Bias -> Risk Tolerance-> Investment Decision	0.02	0.01	1.30	0.20
Status-Quo Bias -> Risk Tolerance-> Investment Decision	0.04	0.02	2.33	0.02

Researchers Study, 2024

Coefficient of Determination (R²): As previously discussed, the coefficient of determination or assessment of the R-square level (Hair et al., 2017) for the model was assessed in order to evaluate the amount of variance explained by the exogenous latent variables on the endogenous latent variables. The R² values is presented in Table 4.4.

Table 4.4: Coefficient of Determination (R²)

Constructs	R Square	R Square Adjusted
Investment Decision	0.75	0.75
Risk Tolerance	0.78	0.77

Source: Researcher's Study, 2024

The results in Table 4.4 reveal high coefficients of determination (R²) for both Investment Decision (R² = 0.75) and Risk Tolerance (R² = 0.78), indicating that the predictive model has strong explanatory power. The R² value of 0.75 for Investment Decision signifies that 75% of the variance in investment decision-making is explained by the predictors, such as behavioral biases and risk tolerance. The adjusted R² remains consistent at 0.75, confirming the robustness of the model and demonstrating that the addition of predictors has not introduced overfitting. These results underscore the significant role that psychological biases and risk preferences play in influencing the financial decisions of Pension Fund Administrators (PFAs). Such findings are consistent with behavioral finance theories, particularly those of Kahneman and Tversky (1979), which emphasize the interplay of heuristics and emotions in financial decision-making.

For Risk Tolerance, the R² value of 0.78 suggests that 78% of its variance is explained by the independent variables. The adjusted R² of 0.77 further validates the model's reliability by accounting for the number of predictors, ensuring that the high R² is not artificially inflated. These results highlight the central role of behavioral biases in shaping an individual's risk tolerance, which, in turn, mediates their

investment decisions. The findings reinforce the importance of understanding the psychological underpinnings of risk preferences, as they serve as a critical link between biases and decision-making outcomes. Overall, the high R^2 values validate the model's ability to capture the dynamics of behavioral influences in financial contexts, providing strong support for the theoretical framework and practical implications for improving decision-making strategies among PFAs.

Assessment of the Effect Size (f^2): Effect Size examines the change in the f^2 value when a particular predicting variable is excluded from the model. This statistical assessment is used to assess whether an omitted variable has any substantive impact on the latent endogenous variable (Hair et al., 2017). Equally, the effect size is measured using rule of thumb as 0.02 small, 0.15 medium, and 0.35 large effects on the target construct respectively (Cohen, 1988). The result of effect size (f^2) analysis is presented in Table 4.5

Table 4.5: Assessment of Effect size (f^2)

Constructs	Investment Decision	Effect Size	Risk Tolerance	Effect Size
Regret Aversion Bias	0.013	None	0.014	None
Risk Tolerance	0.047	Small		
Self-Control Bias	0.005	None	0.003	None
Status-Quo Bias	0.012	None	0.02	Small

Source: Researcher's Study, 2024

The results in Table 4.5 assess the effect sizes (f^2) of various constructs on Investment Decision and Risk Tolerance, providing insight into their relative contributions to these dependent variables. For Investment Decision, Risk Tolerance ($f^2 = 0.047$) exhibit small effect sizes, indicating they play a modest but significant role in shaping investment decisions. These findings align with behavioral finance theories, such as those by Shefrin and Statman (1985), which emphasize the role of psychological biases and risk preferences in decision-making. In contrast, other constructs like Status-Quo Bias ($f^2 = 0.012$) have smaller or negligible effects, suggesting their limited direct influence. Constructs like Regret Aversion Bias, and Self-Control Bias demonstrate minimal impact on Investment Decision, reflecting that their role might be indirect or context-dependent

For Risk Tolerance, Status-Quo Bias also contributes with a small effect size ($f^2 = 0.02$), indicating that a preference for maintaining the current state modestly affects risk tolerance. However, other constructs, such as Self-Control Bias, show negligible or no effects, suggesting their influence on Risk Tolerance is minimal. These findings reinforce the importance of addressing key biases like Disposition Effect and Self-Attribution Bias in behavioral finance models while recognizing that certain biases may indirectly affect outcomes through their relationships with other variables.

5.0 Conclusion and Recommendations:

The findings revealed that regret-aversion bias and status-quo bias have significant negative effects on investment decisions. PFAs affected by regret-aversion tend to avoid decisions that

might lead to future regret, often opting for overly conservative strategies (Elhoussein & Abdelgadir, 2020). Similarly, status-quo bias leads to resistance to change, causing PFAs to hold on to underperforming assets due to fear of loss or preference for familiarity (Godefroid et al., 2022). In contrast, self-control bias showed no significant effect on investment decisions. This suggests that institutional mechanisms or professional training within PFAs may already be addressing impulsive or short-sighted behaviour, reducing its influence (Sripada, 2022).

Importantly, risk tolerance was found to significantly mediate the relationship between regret-aversion and status-quo biases and investment decision-making. PFAs with high risk tolerance were better able to mitigate the adverse effects of these emotional biases and make rational, long-term focused decisions (Ayaa et al., 2022; Raheja & Dhiman, 2020).

The study concludes that emotional biases—especially regret-aversion and status-quo—pose a real challenge to rational investment decision-making in the Nigerian pension fund sector. However, the presence of high risk tolerance among PFAs offers a mitigating pathway that can reduce the adverse effects of these biases. Thus, emotional discipline and risk appetite are critical factors in institutional investment performance.

The study recommends regular behavioral training for PFAs in order to recognize and manage emotional biases. Similarly, Risk Tolerance Profiling using formal tools to align investment strategies with both organizational goals and behavioural tendencies. Also, the need for policy reform that introduces and encourages the use of decision frameworks that promote objectivity and reduce inertia, such as mandatory periodic portfolio reviews. Thus, by integrating behavioural awareness with risk management, PFAs can improve investment outcomes and secure better futures for pension contributors in Nigeria.

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