

# Risk Management and Financial Performance of Pension Fund Administrators (PFAs) in Nigeria

Salisu Ibrahim Iro Ph.D

Taraba State University, Jalingo, Nigeria

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## ABSTRACT

Pension Fund Administrators (PFAs) play a crucial role in securing retirees' financial stability through careful management and strategic investment of pension funds. In Nigeria, the importance of PFAs grew substantially after the 2004 Pension Reform Act which was later updated in 2014 established a stronger contributory pension system. These reforms were introduced to enhance transparency, accountability, and long-term financial sustainability within the pension sector. The study examined the effect of risk management on performance of pension fund administrators (PFAs) in Nigeria. The study utilized a ex-factor design, encompassing the ten-year period from 2014 to 2023. The population consist of all the 21 registered pension fund administrators (PFAs) in Nigeria using 10-years study time frame from (2014-2023). only 14 companies met the criteria and were sampled for the study. The study finds that risk management has a positive but statistically insignificant effect on the return on equity (ROE) of Pension Fund Administrators (PFAs) in Nigeria. This suggests that while improved risk management practices are directionally associated with better equity returns, this relationship is not strong enough to be statistically validated within the dataset and timeframe used in the analysis. The positive direction of the relationship indicates that PFAs that implement stronger risk controls such as asset diversification, regulatory compliance, stress testing, and internal control mechanisms tend to experience improved shareholder value or profitability in relation to their equity base. Theoretically, this aligns with the expectations of Financial Intermediation Theory and Deferred Wage Theory, which posit that risk mitigation enhances financial stability and long-term value creation for both fund managers and contributors. This study employed multiple regression analysis, where the dependent variable, representing the financial performance of Pension Fund Administrators (PFAs) (Y), is explained by multiple independent variables. This approach is appropriate because the study utilizes annual panel data spanning the period 2014–2023. Panel Ordinary Least Squares (OLS) is employed, as it is considered the most suitable technique for handling this sample size compared to other methods. This study concludes that Nigerian pension fund administrators can enhance their financial performance, as measured by Return on Equity (ROE), through strategic domestic asset allocation, while foreign investments and certain risk management interactions offer limited benefits.

**Keywords:** Risk Management, Performance, Pension Fund Administration (Pfas) and Nigeria

## BACKGROUND TO THE STUDY

Pension Fund Administrators (PFAs) play a crucial role in securing retirees' financial stability through careful management and strategic investment of pension funds. In Nigeria, the importance of PFAs grew substantially after the 2004 Pension Reform Act which was later updated in 2014 established a stronger contributory pension system. These reforms were introduced to enhance transparency, accountability, and long-term financial sustainability within the pension sector.

The Nigerian pension sector underwent a major overhaul after the enactment of the Pension Reform Act (PRA) of 2004. This law established the Contributory Pension Scheme (CPS) and formed the National Pension Commission (PenCom) to regulate the industry. The PRA was amended in 2014 to strengthen regulatory oversight and expand coverage.

The financial performance of PFAs is intrinsically linked to the effectiveness of their investment strategy, which in turn is influenced by their risk management capabilities. PFAs that can strategically allocate assets across diverse classes while mitigating associated risks are better positioned to generate superior returns for contributors. Risk management plays a moderating role by ensuring that the inherent risks associated with asset classes such as equities, real estate, and offshore investments are properly identified, quantified, monitored, and controlled. In the Nigerian context, the limited uptake of risk-based asset allocation frameworks hinders the ability of PFAs to exploit high-yield investment opportunities. Most PFAs rely heavily on regulatory investment guidelines rather than robust internal risk management systems to guide their asset allocation decisions (Adegbite & Oyelade, 2021). This results in suboptimal portfolio performance and raises concerns about the long-term sustainability of pension funds, especially in an inflationary economic environment where real returns are eroded.

The integration of risk management into the pension asset investment strategy is further complicated by macroeconomic instabilities in Nigeria, including double-digit inflation, fluctuating exchange rates, and fiscal imbalances. These economic headwinds increase the risk profile of domestic investments and reduce the real return on government securities. The use of dynamic risk management tools such as value-at-risk (VaR), stress testing, scenario analysis, and portfolio rebalancing is vital to navigating these uncertainties. However, evidence suggests that many Nigerian PFAs lack the institutional capacity, technological infrastructure, and skilled manpower to implement these advanced risk management frameworks (Onifade *et al.*, 2022). This capacity gap undermines the potential benefits of investment diversification and negatively affects financial performance. A robust risk management structure would not only guide PFAs in selecting appropriate asset classes but also ensure that investments are aligned with the risk appetite and retirement objectives of contributors.

The moderating role of risk management particularly within Nigeria's unique regulatory and economic environment has been overlooked. This research seeks to fill that gap by empirically analyzing how risk management either enhances or constrains the effectiveness of investment strategies. The findings are intended to inform policy development, strengthen institutional frameworks, and enhance investment decision-making, ultimately contributing to the long-term sustainability and reliability of Nigeria's pension system.

### Statement of the Problem

Advanced economies have matured frameworks for balancing risk with return in pension fund investments, emerging economies such as Nigeria continue to grapple with weak investment infrastructure, limited diversification, regulatory bottlenecks, and underdeveloped risk management practices (OECD, 2023; ILO, 2022). These persistent issues raise critical concerns about the efficacy of pension asset investment strategies and the mechanisms through which risk management can cushion or exacerbate their influence on financial performance.

Despite evidence that international diversification offers potential for improved risk-adjusted returns (WTW, 2023). The disproportionately low exposure to high-yield asset classes reflects an inherent misalignment between current investment strategies and the long-term sustainability of pension fund performance.

A compounding issue is the weak institutionalization of risk management in the Nigerian pension industry. While risk management frameworks have been embedded in the regulatory guidelines by the National Pension Commission (PenCom), actual implementation remains largely cosmetic in many PFAs, undermining their capacity to anticipate, absorb, and respond to investment risks. For instance, investment-related losses resulting from poor portfolio diversification and market timing have occasionally been reported (Adegbite & Oyelade, 2021). Furthermore, PFAs often operate under rigid compliance-based investment strategies rather than dynamic risk-based frameworks. This exposes the pension industry to concentration risks and systemic vulnerabilities, especially in the face of macroeconomic shocks such as exchange rate instability, commodity price volatility, and fiscal imbalances. The absence of robust enterprise-wide risk management systems diminishes the ability of PFAs to optimize investment returns while preserving capital, ultimately compromising their financial performance. A critical gap remains in empirically understanding how components of pension investment strategies influence financial performance when moderated by risk management. Few studies have explored how the scope and rigor of risk management practices alter this relationship (Mwaura & Ngugi, 2022; Onifade *et al.*,

2022). Existing literature including work by Oluwalana and Ibiwoye (2020), Iziegbefian and Onyekachukwu (2023), Fadun and Oye (2020), Temitope *et al.* (2018), and Sorin and Anca (2020) has largely overlooked the moderating role of risk management (Onifade *et al.*, 2022).

### Objective of the Study

The study examined the effect of risk management on performance of pension fund administrators (PFAs) in Nigeria., Another objective is to;

- i. assess the effect of risk management on performance of pension fund administration (PFAs) in Nigeria.

### Research Question

The research questions are presented in line with the objectives of the study as follows:

- i. To what extent does risk management affect the performance of pension fund administration (PFAs) in Nigeria?

### Research Hypothesis

The research hypotheses are presented in null form in line with the objectives of the study as follows:

**H<sub>01</sub>:** Risk management have no significance effect on the performance of pension fund administrators (PFAs) in Nigeria

## EMPIRICAL AND CONCEPTUAL REVIEW

### Conceptual Review

#### Financial Performance

Risk management is a critical component in ensuring the long-term viability of pension funds and safeguarding them against economic volatility. Fundamental practices encompass the integration of Environmental, Social, and Governance (ESG) criteria into investment strategies and the adherence to strong governance frameworks. Furthermore, proficient oversight by experienced trustees, operating independently of political intervention, is essential to facilitate diversification into stable and secure asset classes.

The sector faces several challenges and opportunities. Administrators must balance short-term liquidity needs with long-term growth objectives while addressing the administrative and financial costs of portfolio adjustments. Innovative schemes, particularly for informal sector participants, can combine short-term liquidity with long-term retirement savings, thereby increasing inclusivity and coverage.

#### Risk Management and Financial Performance of PFAs

Risk management is essential for enhancing the financial performance of organizations, including pension fund administrators, by mitigating uncertainties arising from financial operations, asset allocation, and market dynamics. The relationship between risk management and financial performance is typically analysed using three key variables. Independent variables include factors such as asset investment strategies, risk exposures (credit, liquidity, and operational risks), and regulatory compliance, which directly influence risk levels. Risk management acts as the moderator, aligning asset strategies with organizational risk tolerance and market conditions through tools like stress testing, Value at Risk (VaR), and scenario analyses. The dependent variables, such as return on equity (ROE), measure the outcomes of these strategies.

Every Pension Fund Administrator (PFA) is required to establish a Risk Management Committee to define the risk profile of investment portfolios, address deviations, set reserve levels, advise on internal controls, and handle other risk-related matters, as well as an Investment Strategy Committee to ensure compliance with investment

guidelines, determine the optimal investment mix, evaluate daily portfolio values, review major securities periodically, and perform other investment-related tasks as directed by the board. PFAs must also maintain a statutory reserve fund, credited annually with 12.5% of net profit after tax or another percentage set by the Commission, to cover potential liabilities. Additionally, the Commission must create and manage a Pension Protection Fund funded by 1% of the total monthly public service wage bill, an annual levy on all licensed pension operators, and investment income to finance minimum guaranteed pensions, compensate pensioners for investment-related losses, and fulfil other approved purposes, with regulations governing its management, custody, and eligibility criteria.

## Empirical Review

Several studies have examined the relationship between pension fund investment strategies and financial performance, offering critical insights into how strategic asset allocation affects returns and risk profiles.

Mennis and Walker (2021) explored the impact of pension asset diversification on risk-adjusted performance metrics in South Africa. Using a dataset of 35 retirement funds over a 15-year period and applying the Treynor, Sharpe, and Jensen's Alpha performance measures, the study found that funds with diversified portfolios across asset classes (including foreign investments) outperformed those with concentrated holdings. The research offers a nuanced understanding of how asset diversification affects pension fund sustainability. Nevertheless, it lacks a detailed explanation of external macroeconomic influences such as inflation and interest rates, which could have enriched the interpretation of results.

According to OECD (2023) report, Pension Markets in Focus, provided a comprehensive overview of global pension markets, focusing on trends, challenges, and developments in pension fund administrators. The report highlighted key data from 2022, examining the impact of demographic changes, investment strategies, and regulatory frameworks on pension markets worldwide. It discussed the role of private pensions in providing retirement income security and the importance of well-managed pension funds in achieving financial sustainability. The OECD emphasized the need for effective governance, robust risk management, and transparent reporting practices to build confidence among beneficiaries and ensure long-term sustainability. The report also provides insights into policy recommendations for governments and stakeholders to strengthen pension systems, including diversification of investment portfolios and adaptation to evolving economic conditions.

Iziegbefian and Onyekachwuku (2023) examined the challenges in investigating how corporate governance affects the effective performance of contributory pension schemes in Nigeria. The study identified several issues, including inadequate regulatory enforcement, lack of transparency, and weak oversight mechanisms, which impede the effective governance of pension funds. The study argued that these challenges contribute to poor investment decisions, increased risks, and ultimately undermine the sustainability of pension schemes. It highlighted the need for stronger regulatory frameworks, improved monitoring, and better governance practices to ensure the proper management of pension funds and protect the interests of beneficiaries. The study underscored the complexity of aligning corporate governance with the operational needs of pension funds in Nigeria and provides valuable insights for policymakers and administrators aiming to enhance the effectiveness of the contributory pension system.

Fadun and Oye (2020) investigated the impacts of operational risk management on the financial performance of commercial banks in Nigeria. The study highlighted how effective management of operational risks, such as fraud, IT failures, and compliance breaches, can significantly influence a bank's financial stability and performance. It found that banks with robust operational risk management frameworks are better positioned to safeguard their assets, reduce exposure to financial losses, and maintain customer trust. Through empirical analysis, the study demonstrates a positive relationship between strong operational risk management practices and enhanced financial outcomes, including improved profitability and reduced volatility. The study provided valuable insights for bank managers and regulators, emphasizing the importance of integrating comprehensive risk management strategies to protect against operational risks and ensure the long-term sustainability of the financial sector in Nigeria.

Ahmed, (2023) examined the risks within the contributory pension scheme for Lagos State public servants. The research highlighted a flawed rollout, where a lack of adequate sensitization combined with the fear of job loss forced many government workers including those initially exempt into the scheme. Analyzing data from 187 attendees of a pre-retirement seminar via correlation analysis in SPSS, the study yielded two key findings: a positive correlation between employee contributions and remittances, and a moderate positive correlation between accrued rights and retirement benefits.

Lindmila *et al.* (2022) used economic modeling to assess financial risk management for sustainable development. Comparing the pre-crisis (2015-2019) and crisis (2020-2021) periods across 185 countries, the research revealed a precarious financing landscape. From 2019 to 2021, total investments declined by 2.62%, while government fiscal pressures intensified evidenced by a 201.40% increase in net lending/borrowing and a 12.49% rise in gross debt. Despite this, the aggregate contribution of all financing sources to sustainable development increased from 1.16% to 4.28%. The authors emphasized that traditional public financing is insufficient to meet the high demand of the "decade of action" and strongly advocated for an accelerated shift towards private investments, whose contribution has shown substantial growth.

Obasa (2023) explored the importance of risk management and the development of dynamic investment strategies in the global pension industry, emphasizing their critical role in ensuring the survival and effectiveness of defined contributory schemes, particularly in the face of unexpected events. The study highlighted the need to identify and assess both actual and potential risk areas in pension administration to determine whether such risks should be mitigated, transferred, accepted, or eliminated. It also evaluated whether the performance of various investment strategies could serve as a solution for sustaining the Nigerian pension scheme. Using an exploratory research approach, the paper addressed retirees' skepticism regarding the adoption of the new Contributory Pension Scheme (CPS) as a means of addressing pension management challenges. The study recommended designing a robust institutional framework for the pension fund industry and implementing extensive market surveillance as effective measures for mitigating operational risks in funded pension schemes, particularly in emerging economies.

Yusuf *et al.* (2023) investigated the role of the risk management committee as a moderator between board attributes and firm survival in Nigeria's listed manufacturing sector. Analyzing data from 34 firms (2011-2022) with Generalized Least Squares, the research yielded two key findings: First, board independence, size, and expertise were positive and significant predictors of firm survival, whereas gender diversity was not. Second, and central to their hypothesis, the risk management committee did not have a significant moderating effect. The authors concluded that board characteristics themselves are vital governance mechanisms for ensuring survival. They recommend that shareholders prioritize appointing members with relevant expertise and maintaining an optimal board size over focusing on independence alone to drive innovation and sustainable growth.

Samuel *et al.* (2023) conducted a case study on ARM pension fund administration to evaluate security risk assessment practices. The research emphasized that the identification and management of risks are fundamental to ensuring the financial health and credibility of pension systems. Through the application of comprehensive risk frameworks, the study identified significant vulnerabilities within management processes and proposed strategies to fortify security protocols. The findings ultimately affirmed that implementing effective risk management is crucial for safeguarding fund assets and sustaining confidence among stakeholders.

Benson and Erick (2022) investigated the effect of portfolio diversification on the financial performance of pension funds in Tanzania. The research emphasized that strategic asset allocation is critical for optimizing returns and mitigating risk. Analysis of pension fund data revealed that portfolios incorporating equities, fixed-income securities, and alternative investments tend to achieve superior financial outcomes. The study identified strategic decision-making, proficient fund management, and adherence to regulatory standards as key factors in enhancing portfolio efficiency. It concludes by advocating for the continual assessment and diversification of investment portfolios to secure long-term profitability and sustainability for pension funds.

Qinzha (2023) investigated the effect of financial risk management strategies on firms' market competitiveness. The study analyzed how companies can leverage risk management techniques to strengthen their market position and resilience in volatile business environments. It identified key strategies, including investment portfolio

diversification, hedging, and effective liquidity management, as essential for mitigating financial risks and protecting competitive advantage. The research highlighted the link between strong risk management practices and improved financial performance, showing how these approaches help firms maintain stability and a competitive edge in fluctuating markets. The findings offer valuable insights for managers and policymakers, emphasizing the need to integrate comprehensive risk management frameworks into corporate strategy to achieve long-term competitiveness and sustainability.

Sorin and Anca (2020) conducted a comprehensive review of Enterprise Risk Management (ERM), focusing on its development, importance, and practical implementation across various industries. The study examined core ERM elements, including risk identification, assessment, mitigation, and integration into strategic decision-making. It highlighted the positive effects of ERM on organizational performance, resilience, and value creation, while noting gaps in the literature, such as the need for more empirical research and industry-specific studies. The authors suggested a future research agenda addressing technological innovations, behavioral factors in risk management, and the integration of ERM with sustainability frameworks, providing a solid basis for further investigation in the field.

Idowu and Ibrahim (2021) examined the impact of risk management and internal control systems on the efficacy of pension fund administration in Nigeria. The research emphasized that implementing rigorous risk mitigation strategies and robust internal controls is vital for enhancing the performance and sustainability of pension funds. Key impediments to optimal management were identified, including deficiencies in governance and regulatory frameworks. The authors advocated for strengthened compliance mechanisms, greater accountability, and enhanced risk management practices to fortify the sector. The findings offer critical insights for policymakers and stakeholders seeking to improve the administration of pension funds in Nigeria.

Ahmed *et al.* (2023) explored pension risk management in the public sector, with a focus on the Lagos State Government Public Service. The study identified major risks—including funding shortfalls, mismanagement of pension funds, and demographic pressures—that threaten the sustainability of the pension system. It emphasized the need for strong risk management frameworks, such as enhanced regulatory compliance, efficient fund allocation, and proactive planning, to address these challenges. The findings highlighted the importance of transparency, accountability, and stakeholder collaboration in ensuring the long-term viability of public sector pensions. The study provides valuable guidance for policymakers aiming to improve pension administration in Lagos State and beyond.

## Literature Gap

Effect of Risk Management and Financial Performance of Pension Fund Administrators in Nigeria," is highly relevant and critical in ensuring the sustainability and profitability of pension funds in Nigeria. (Johnson, 2020; Hyeladi *et al.* 2023) examine pension fund investment strategies, highlighting the importance of portfolio diversification and regulatory compliance, particularly under frameworks such as the Pension Reform Act 2014. (Alajide & Diekolola 2020; Jonas *et al.*, 2023) explored the role of risk management frameworks in mitigating financial losses, identifying weaknesses in risk assessment practices among Pension Fund Administrators (PFAs) and their implications for long-term stability. Financial performance has been linked to governance, asset allocation, and regulatory compliance, though few studies consider the moderating role of risk management in this relationship (Munther *et al.*, 2021). While (Adegbite *et al.*, 2020) discussed mediators such as corporate governance, there is limited focus on risk management practices as moderators, integrating risk management as a moderating variable between investment strategies and financial performance outcomes.

While risk management has gained prominence in pension fund administration, its function as the effect of risk and the financial performance of Pension Fund Administrators (PFAs) in Nigeria remains inadequately explored. This research seeks to address this gap by examining how risk management influences this critical relationship. The anticipated outcomes will contribute to refined governance practices, superior investment outcomes, and the long-term sustainability of the Nigerian pension sector.

## METHODOLOGY

The study utilized an ex-factor design, encompassing the ten-year period from 2014 to 2023. This duration was selected to evaluate the effect of risk management and the financial performance of Pension Fund Administrators (PFAs) in Nigeria throughout the initial decade post-implementation of the Amendment Act. This longitudinal approach facilitates the gathering of historical and multidimensional data, thereby establishing a robust foundation for a thorough empirical examination.

The population consists of all the 21 registered pension fund administrators (PFAs) in Nigeria using a 10-year study time frame from (2014-2023). Only 14 companies met the criteria and were sampled for the study.

### Exclusion Criteria:

- Any PFA that fails to provide complete data for the study period (2014-2023) due to reasons such as non-reporting or data unavailability.
- Exclude PFAs with missing or irregularly audited financial reports, as this could compromise the validity of the analysis.
- Exclude PFAs that underwent mergers, acquisitions, or were deregistered during the study period, as their financial data may not accurately reflect the performance of the original entity.
- Exclude PFAs that have faced significant regulatory issues or sanctions during the study period, as their performance may be significantly influenced by these factors.

### Variables and Measurement

The relationship between risk management, and financial performance, variables and measurements are essential for meaningful analysis. Risk management serves as the moderating variable, influencing financial performance. Risk management involves identifying, assessing, and mitigating investment risks such as market, credit, and liquidity risks. It can be measured using risk-adjusted performance metrics like the Sharpe ratio, Value at Risk (VaR), or indices reflecting adherence to regulatory frameworks or governance practices. The inclusion of risk management helps evaluate whether the effectiveness of investment strategies is enhanced or constrained by the robustness of risk mitigation practices.

Table 3: Variables and Measurement

| Variable                         | Proxy (ies)                               | Nature of Variable | Measurement                                 | Measurement Source                             |
|----------------------------------|---|--------------------|---|--|
| Investment Portfolio Performance | Return on Equity                          | Dependent          | Ratio of net income to average total assets | Afuberoh & Okoye (2014)<br>Abdulkadir (2016)   |
| Risk Management                  | Systematic risk measured by Interest Rate | Independent        | Prevailing Interest Rate                    | Adeoye & Lourens (2022)<br>Ahmed et al. (2023) |

**Source: Compile by the Researcher, 2025**

This study employed multiple regression analysis, where the dependent variable, representing the financial performance of Pension Fund Administrators (PFAs) (Y), is explained by multiple independent variables. This approach is appropriate because the study utilizes annual panel data spanning the period 2014–2023. Panel Ordinary Least Squares (OLS) is employed, as it is considered the most suitable technique for handling this sample size compared to other methods.

### Data Analysis and Interpretation

## Descriptive Statistics

Table 4: Descriptive statistics

| Variable | Obs. | Mean      | Std. Dev. | Minimum   | Maximum  |
|----------|------|-----------|-----------|-----------|----------|
| ROE      | 140  | 0.4884805 | 1.087835  | -6.230762 | 3.878092 |
| RM       | 140  | 11.82093  | 6.267642  | 5.03      | 27.5     |

Source: Generated using STATA, 2025

From Table 4 above, the Return on Equity (ROE), with an even higher standard deviation of 1.09, points to greater volatility in the returns that shareholders are receiving. The minimum ROE of -6.23 shows that some firms are experiencing severe losses, likely due to poor investment decisions, excessive leverage, or adverse market conditions. On the other hand, the maximum ROE of 3.88 suggests that a few firms are achieving exceptional returns, possibly as a result of aggressive but well-managed investment strategies or favorable market positioning. This wide dispersion in ROE highlights the financial risk inherent in the sector, suggesting that equity returns are not stable or uniform across PFAs. It also indicates that some firms may be over-leveraged, relying heavily on debt financing, which amplifies both gains and losses.

This minimal allocation might be targeted at specific low-risk foreign assets, such as sovereign bonds or international mutual funds, for the purpose of portfolio diversification or to hedge against domestic economic risks. However, even the highest recorded value remains significantly below 1%, reinforcing the notion that foreign investment is not a major component of pension asset strategy in Nigeria.

The descriptive statistics for the risk management variable reveal a mean value of 11.82093, indicating the average level of risk management practices implemented by the Pension Fund Administrators (PFAs) over the study period. The minimum value of 5.03 suggests that some PFAs exhibit relatively weak or underdeveloped risk management frameworks. Conversely, the maximum value of 27.5 indicates that a few PFAs have adopted more robust, perhaps highly formalized, risk management structures. This wide range reflects significant variability in how PFAs manage investment-related risks, which is crucial in understanding the financial sustainability of pension funds. Such disparity may stem from differences in internal governance structures, technological capacities, compliance levels with regulatory standards, or strategic priorities across PFAs. The relatively high mean implies that, on average, PFAs in Nigeria have moderately structured risk management practices. However, the substantial gap between the minimum and maximum values suggests that some PFAs may be exposed to higher financial and operational vulnerabilities due to inadequate risk oversight. This heterogeneity supports the rationale for examining risk management as a moderating variable since the inconsistent application of risk control mechanisms can significantly influence the effectiveness of pension asset investment strategies on financial performance. The data provides empirical justification for testing whether PFAs with higher levels of risk management capability are better able to translate investment strategies into improved returns, compared to those with lower risk management scores.

Table 5: Correlation matrix

| Variables | ROE    | FGB   | ORD    | RID   | FID   | RM     | FGBINT | ORDINT | RIDINT | FIDINT |
|-----------|--------|-------|--------|-------|-------|--------|--------|--------|--------|--------|
| ROE       | 1.0000 |       |        |       |       |        |        |        |        |        |
| RM        | 0.074  | 0.375 | -0.022 | 0.035 | 0.584 | 1.0000 |        |        |        |        |

Source: Generated using STATA, 2025

From Table 5 the correlation results show Risk Management (RM) ( $r = 0.074$ ), suggesting that these investments have small positive associations with firm performance.

TRM ( $r = 0.375$ ), while FID shows a moderate positive correlation with RM ( $r = 0.584$ ). These relationships suggest possible interaction and multicollinearity concerns, which may need to be addressed in regression analysis.

**Table 6: Multicollinearity Test**

The Variance Inflation Factor (VIF) is employed to assess multicollinearity in regression analysis. Multicollinearity arises when two or more independent variables in a model are highly correlated, potentially distorting coefficient estimates and undermining the reliability of the results.

Variance inflation factor

. estat vif

| Variable | VIF  | 1/VIF    |
|----------|------|----------|
| rid      | 1.66 | 0.603177 |

|          |      |
|----------|------|
| Mean VIF | 6.25 |
|----------|------|

Heteroskedasticity

Breusch–Pagan/Cook–Weisberg test for heteroskedasticity

Assumption: Normal error terms

Variable: Fitted values of roe

H0: Constant variance

chi2(1) = 19.48

Prob > chi2 = 0.0000

**Source: Generated using STATA, 2025**

Table 11: Regression Result/ Test of Hypotheses

| roe     | Coefficient                                 | Std. err. | t    | P> t  | [95% conf. interval] |
|---------|---|-----------|------|-------|----------------------|
| rm      | .3208705                                    | .1945595  | 1.65 | 0.102 | -.0644103 .7061513   |
| sigma_u | .267079                                     |           |      |       |                      |
| sigma_e | .46191671                                   |           |      |       |                      |
| rho     | .25055017 (fraction of variance due to u_i) |           |      |       |                      |

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F test that all  $u_i=0$ :  $F(13, 118) = 2.45$

Prob > F = 0.0057

## DISCUSSION OF FINDINGS

The study finds that risk management has a positive but statistically insignificant effect on the return on equity (ROE) of Pension Fund Administrators (PFAs) in Nigeria. This suggests that while improved risk management practices are directionally associated with better equity returns, this relationship is not strong enough to be statistically validated within the dataset and timeframe used in the analysis.

The positive direction of the relationship indicates that PFAs that implement stronger risk controls such as asset diversification, regulatory compliance, stress testing, and internal control mechanisms tend to experience improved shareholder value or profitability in relation to their equity base. Theoretically, this aligns with the expectations of Financial Intermediation Theory and Deferred Wage Theory, which posit that risk mitigation enhances financial stability and long-term value creation for both fund managers and contributors.

### Summary of findings

This study examines how risk management influences the relationship between investment strategies and financial performance among Nigerian Pension Fund Administrators (PFAs) from 2014 to 2023. It highlights the critical role of pension funds in Nigeria's economy and the necessity of sound investment approaches to improve financial outcomes for PFAs. The research focuses on investments in federal government securities, ordinary shares, and real estate, analyzing how risk management moderates their effect on financial performance. The results aim to guide policy and investment practices in the pension sector.

## CONCLUSION

This study concludes that Nigerian pension fund administrators can enhance their financial performance, as measured by Return on Equity (ROE), through strategic domestic asset allocation, while foreign investments and certain risk management interactions offer limited benefits.

Risk management yields varied insights: its interaction with federal government securities and ordinary shares is negative but insignificant, suggesting that additional risk controls may be redundant or misaligned for these asset classes. However, risk management has a significantly negative effect when applied to real estate investments, implying that current strategies may be overly restrictive or ill-suited to real estate dynamics, thereby limiting returns. For foreign investments, risk management also shows an insignificant negative effect, highlighting potential shortcomings in adapting these practices to international market complexities.

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