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INVESTMENT DECISIONS AND PERFORMANCE OUTCOMES OF PENSION FUND ADMINISTRATORS IN NIGERIA

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Abstract

This study examined the relationship between investment decisions and the performance outcomes of Pension Fund Administrators (PFAs) in Nigeria, with specific attention to how fund returns, equity investment, contribution density, and investment strategy collectively influence pension fund performance. The study was motivated by persistent variability in pension fund performance among PFAs, which undermines contributors' confidence and threatens the long-term sustainability of the Nigerian pension system. A correlational research design was adopted, using secondary data from all twenty (20) licensed PFAs operating in Nigeria as of December 2024. A purposive sample of 20 PFAs with complete data covering the period 2015–2023 was selected. Data were sourced from PenCom annual reports, PFA investment reports, and fund price fact sheets, and analyzed using descriptive statistics, correlation analysis, and multiple regression techniques with the aid of the EViews statistical package. Findings revealed that fund returns (FRT) exerted a significant positive effect on pension fund performance ($\beta = 0.215$, $p < 0.01$); investment strategy (INS) was positive and statistically significant ($\beta = 0.192$, $p < 0.01$); equity investment (EQI) had a positive and significant effect ($\beta = 0.143$, $p < 0.01$); and contribution density (CDN) also positively and significantly influenced pension fund performance ($\beta = 0.089$, $p < 0.05$), though with a comparatively weaker effect. The study recommends that PFAs adopt diversified investment strategies, optimize equity allocation, improve return generation mechanisms, and encourage consistent contributions in order to sustain pension fund performance and secure long-term retirement adequacy for contributors.

Keywords: pension fund performance, investment decisions, fund returns, equity investment, contribution density

1. Introduction

Performance outcomes of Pension Fund Administrators (PFAs), reflected in indicators such as fund growth, return on assets, risk-adjusted yields, and real value preservation, have become global benchmarks for evaluating the sustainability of retirement systems. Strong performance outcomes ensure that PFAs generate stable, inflation-adjusted returns capable of securing adequate income for retirees, whereas weak performance exposes contributors to real value erosion, benefit inadequacy, and long-term social insecurity (World Bank, 2022; Organisation for Economic Co-operation and Development [OECD], 2023).

Across developed economies, pension funds have increasingly adopted dynamic investment models that emphasize diversified asset allocation, risk-based strategies, and long-term return optimization (International Monetary Fund [IMF], 2023). However, in many emerging markets, including several African economies, pension fund performance has been constrained by volatile macroeconomic environments, limited investment opportunities, and inconsistent contribution patterns (Agyeman & Kusi, 2021).

Nigeria, one of the largest pension markets in Sub-Saharan Africa, exhibits a similar paradox of rapidly growing pension assets alongside fluctuating performance outcomes driven by market volatility, inflationary pressures, portfolio concentration, and compliance challenges. These conditions raise concerns about whether investment decisions—particularly fund returns, equity exposure, contribution density, and strategic asset allocation—effectively translate into strong performance outcomes capable of securing long-term retirement adequacy.

Within the Nigerian context, the Contributory Pension Scheme (CPS) was introduced to ensure sustainable retirement security by pooling mandatory monthly contributions and investing them through licensed PFAs. Although pension assets have grown significantly to exceed ₦17 trillion, performance outcomes remain inconsistent due to structural challenges such as unstable fund returns, high inflation, low contribution density, and conservative investment patterns that limit long-term growth opportunities (PenCom, 2024; Arowoshegbe & Emeni, 2023).

Empirical evidence suggests that fund returns play a critical role in shaping pension performance; however, many Nigerian PFAs often generate returns that fall below inflation, leading to negative real returns for contributors (Ogunlana & Ahmed, 2022). Similarly, equity investment, a key driver of long-term portfolio growth, remains underutilized due to market volatility, weak corporate governance structures, and systemic risks within the Nigerian stock market (Nwachukwu & Ibekwe, 2021).

Contribution density also significantly affects liquidity and investment capacity, particularly because many workers in Nigeria's large informal sector contribute irregularly to pension schemes (Eze & Nwosu, 2023). In addition, investment strategy plays a crucial role, as PFAs' asset allocation decisions determine the balance between risk and return; however, most PFAs continue to rely heavily on low-risk government securities, thereby limiting long-term growth potential (Okoli & Edet, 2022). These issues collectively underscore the need to examine how investment decisions translate into pension fund performance outcomes in Nigeria.

Despite increasing scholarly attention to pension fund performance, several empirical and theoretical gaps remain. First, earlier studies often focused on determinants of pension fund growth without sufficiently linking performance outcomes to the interaction of investment decisions under the multi-fund structure introduced by PenCom (Oluwatosin & Dada, 2021). Second, many Nigerian studies examined isolated variables such as equity investment or fund returns but largely ignored contribution density, a factor that international studies (OECD, 2023; IMF, 2024) identify as an important determinant of pension performance due to its influence on liquidity and investment capacity.

Third, while global studies have advanced theoretical frameworks such as Modern Portfolio Theory, risk-based asset allocation, and liability-driven investment strategies (Bodie & Merton, 2020), Nigerian empirical studies have been relatively slow in incorporating these frameworks into pension performance models. Fourth, existing

empirical findings remain fragmented and inconclusive. For example, some studies report positive effects of equity investment on pension performance (Owolabi & Ike, 2023), whereas others find negative effects under volatile market conditions (Afolayan & Shonubi, 2022). These inconsistencies highlight the need for a more comprehensive and updated analysis using recent data and multiple explanatory variables to better understand how investment decisions influence pension fund performance in Nigeria.

Despite the steady growth of pension assets in Nigeria, pension fund performance outcomes remain unstable, largely because investment decisions have not consistently translated into optimal returns. Poor fund returns, volatility in equity markets, low contribution density, and conservative or weakly diversified investment strategies continue to weaken the performance of PFAs, particularly during periods of inflationary pressure and economic downturns (PenCom, 2024; IMF, 2023). These persistent challenges limit the ability of the pension system to guarantee adequate retirement income, thereby creating both practical and technical concerns. Practically, contributors face the risk of receiving retirement benefits that may not keep pace with rising living costs.

Technically, PFAs struggle to balance regulatory compliance with the need to pursue higher-yield investment strategies. A significant knowledge gap therefore exists concerning the combined effects of fund returns, equity exposure, contribution density, and investment strategy on pension fund performance outcomes in Nigeria. This study addresses these gaps by providing an updated and integrated assessment of how key investment decisions influence performance outcomes within the Nigerian pension industry.

The broad objective of this study is to examine the effect of investment decisions on the performance outcomes of Pension Fund Administrators (PFAs) in Nigeria. Specifically, the study seeks to:

i. Examine the effect of fund returns on the performance outcomes of PFAs in Nigeria.
ii. Assess the relationship between equity investment and the performance outcomes of PFAs in Nigeria.
iii. Determine the effect of contribution density on the performance outcomes of PFAs in Nigeria.
iv. Evaluate the influence of investment strategy on the performance outcomes of PFAs in Nigeria.

In line with the stated objectives, the following null hypotheses were formulated and tested at a 5% level of significance:

H_{01}: Fund returns have no significant effect on the performance outcomes of PFAs in Nigeria.

H_{02}: Equity investment has no significant relationship with the performance outcomes of PFAs in Nigeria.

H_{03}: Contribution density has no significant effect on the performance outcomes of PFAs in Nigeria.

H_{04}: Investment strategy has no significant influence on the performance outcomes of PFAs in Nigeria.

2. Literature Review

Pension Fund Performance

Pension fund performance represents the extent to which PFAs effectively accumulate, preserve, and grow contributors' retirement savings through sound investment decisions, efficient portfolio management, and long-term value optimization. Globally, pension fund performance is considered a multidimensional construct, measured using indicators such as return on investment, net asset value growth, risk-adjusted returns, and the ability of pension assets to outperform inflation and benchmark portfolios (OECD, 2023; World Bank, 2022).

Empirical studies across different economies emphasize that strong pension fund performance ensures adequate income replacement for retirees, enhances financial security in old age, and strengthens the credibility of national pension systems (Agyeman & Kusi, 2021). In developing economies, including Nigeria, pension fund performance is influenced not only by market-driven returns but also by regulatory frameworks, contribution consistency, and investment strategy choices (Ogunlana & Ahmed, 2022; Nwachukwu & Ibekwe, 2021). Recent literature further highlights the critical role of portfolio diversification, equity exposure, and macroeconomic stability in shaping performance outcomes in emerging pension markets (Arowoshegbe & Emeni, 2023).

For the purpose of this study, pension fund performance (performance outcomes) is defined as the ability of PFAs to generate sustainable, inflation-adjusted, risk-efficient returns that ensure the long-term growth and adequacy of contributors' retirement savings through effective investment decisions and strategic portfolio allocation.

Investment Decisions in Pension Funds

Investment decisions in pension funds refer to the systematic choices made by fund managers regarding how accumulated retirement assets are allocated across various investment instruments to achieve long-term growth, risk minimization, and sustainability. Globally, investment decisions aim to balance the competing objectives of capital preservation, liquidity, and adequate return generation, particularly in the face of economic uncertainty and demographic pressures (OECD, 2023; World Bank, 2022).

Previous studies emphasize that sound investment decisions involve evaluating expected fund returns, market conditions, asset risk profiles, regulatory constraints, and the financial needs of contributors both before and after retirement (Agyeman & Kusi, 2021). In advanced pension systems, strategic investment decisions are guided by Modern Portfolio Theory, liability-driven investment frameworks, and diversified allocation across equities, bonds, real estate, and alternative assets to optimize performance outcomes and protect beneficiaries against inflation and longevity risks (IMF, 2023).

In emerging economies such as Nigeria, investment decisions have gained increasing attention due to rapidly growing pension assets and volatile financial markets. Evidence suggests that PFAs adopting forward-looking investment strategies, diversified asset allocation, and consistent contribution flows tend to achieve more stable and sustainable performance outcomes, even during periods of inflation or economic downturns (Arowoshegbe & Emeni, 2023). For the purpose of this study, investment decisions in pension funds are defined as the structured and strategic choices made by PFAs regarding fund returns, equity investments, contribution density, and asset allocation strategies aimed at optimizing long-term performance outcomes, minimizing risk, and ensuring sustainable retirement security for contributors.

Empirical Review

Aganga and Musa (2022) examined the relationship between fund returns and pension fund performance to determine whether investment-generated returns significantly influence the efficiency of PFAs. Fund returns were measured using annual return percentages, while performance was assessed through growth in unit prices and net asset value. The study adopted an ex-post facto research design, relying on secondary data from selected PFAs between 2010 and 2020. The population comprised all PFAs in Nigeria, with a purposive sample of 10 PFAs selected based on data completeness. Correlation and regression analyses were employed to test the hypotheses. Findings indicated that fund returns exert a strong positive effect on pension fund performance. However, the study was limited by its narrow focus on fund returns alone, without considering the influence of portfolio structure or contribution patterns.

Similarly, Owolabi and Ike (2023) investigated the impact of equity exposure on pension fund performance in Nigeria, aiming to evaluate whether equity investment enhances long-term returns despite associated market risks. Equity allocation ratios served as the proxy for equity exposure, while performance was measured using risk-adjusted returns. The study adopted a panel research design, using data from 12 PFAs over a 12-year period. A stratified sampling technique ensured representation across PFAs of different asset sizes. Results showed that higher equity exposure yields increased long-term returns but also elevates portfolio volatility. A limitation of the study was its exclusive focus on equity investment without integrating other investment decision variables such as contribution density or diversification strategies.

Etim and Effiong (2021) examined the effect of contribution density on pension fund investment decisions, exploring how consistent contribution patterns influence liquidity and investment capacity. Contribution density was measured as the ratio of actual to expected contributions, while investment outcomes were captured through investment income and fund growth. The study employed a descriptive and correlational design, using data from 15 PFAs complemented by PenCom reports. A census sampling approach covered all PFAs with available contribution data. Findings revealed that contribution density significantly improves liquidity and positively affects investment decisions. However, the study did not assess how contribution density ultimately impacts pension fund performance, limiting the generalizability of the findings.

Nwankwo and Ume (2024) explored the predictive influence of investment strategy on pension fund performance by examining the roles of diversification and asset allocation. Investment strategy was measured using asset allocation scores and portfolio diversification indices, while performance was captured through return on investment. The study adopted a longitudinal research design, using data from seven leading PFAs over an eight-year period. A purposive sampling technique was applied, with data collected from audited financial statements and PenCom bulletins. Findings indicated that investment strategy significantly predicts fund performance, particularly when portfolio diversification is high. However, the study focused primarily on large PFAs, potentially overlooking smaller PFAs that may operate under different constraints.

Overall, the empirical evidence suggests that fund returns, equity investment, contribution density, and investment strategy all influence pension fund performance. Nevertheless, findings across studies are inconsistent due to differences in data periods, measurement proxies, and analytical techniques. Many studies examined individual

variables in isolation rather than providing a holistic model of investment decision variables, leaving both theoretical and empirical gaps that the present study seeks to address.

Theoretical Framework

Modern Portfolio Theory (MPT), propounded by Harry Markowitz in 1952, posits that investors can optimize returns for a given level of risk by diversifying across asset classes. The central premise is that combining assets with varying risk-return characteristics reduces unsystematic risk and enhances long-term performance. Recent studies have applied MPT in pension fund contexts. For instance, Agyeman and Kusi (2021) highlighted how diversified investment portfolios improve pension outcomes. Ogunlana and Ahmed (2022) demonstrated the positive effects of balanced asset allocation on fund performance; and Arowoshegbe and Emeni (2023) linked MPT to performance resilience under market volatility. In the context of this study, MPT directly informs equity investment, fund returns, and investment strategy, emphasizing that rational asset allocation decisions can significantly enhance pension fund performance.

Life-Cycle Investment Theory (LCIT), developed by Modigliani and Brumberg in 1954, argues that investment decisions should adapt to an investor's age, risk tolerance, and proximity to retirement. The theory suggests that younger contributors should be exposed to higher-risk, higher-return assets such as equities, while older contributors should gradually shift toward safer, income-generating instruments. Recent pension studies have applied LCIT in evaluating multi-fund structures, with Etim and Effiong (2021) exploring the effects of age-based portfolio allocation on return sustainability, and Eze and Nwosu (2023) examining the relationship between age-based risk adjustments, contribution density, and investment outcomes. Within this study, LCIT connects investment strategy and contribution density to long-term pension performance, illustrating how structured allocation patterns affect fund growth and stability.

Institutional Investment Theory (IIT), rooted in early institutional economics (Veblen, 1919) and expanded by North (1990), emphasizes that institutional investors such as PFAs operate under regulatory rules, governance structures, fiduciary responsibilities, and rational investment practices. Recent applications in pension studies include Aganga and Musa (2022), who examined the influence of regulatory frameworks on return outcomes, and Nwankwo and Ume (2024), who evaluated how institutional constraints shape investment strategy. IIT directly links all key variables of this study—fund returns, equity investment, contribution density, and investment strategy to performance outcomes by demonstrating how institutional policies, governance, and compliance shape investment decisions and ultimately pension fund performance.

3. Methodology

This study adopted a correlational research design, using historical records of pension fund activities generated by PFAs and the National Pension Commission (PenCom). A correlational design was appropriate as it enabled the researcher to systematically examine the direction and strength of relationships between investment decision variables and pension fund performance without manipulating the variables, thereby providing meaningful insights into their associations over time.

The population comprised all twenty (20) licensed PFAs operating in Nigeria as of December 2024. A purposive sampling technique was employed to select all 20 PFAs that

had complete and consistent data for the period 2015–2023, ensuring reliability and comparability of the dataset. Purposive sampling was chosen because the study required PFAs with full data coverage across the study period, making it the most appropriate technique for ensuring analytical rigour.

Secondary data were collected from PenCom annual reports, PFA investment reports, and fund price fact sheets, covering the key variables: fund returns, equity investment, contribution density, and investment strategy. Data analysis was conducted using the EViews statistical package, applying descriptive statistics, correlation matrices, and multiple regression techniques to examine how investment decisions influence pension fund performance in Nigeria.

The twenty PFAs included in the study are: ARM Pension Managers Limited, Crusader Sterling Pensions Limited, FCMB Pensions Limited, Fidelity Pension Managers, First Guarantee Pension Limited, Guaranty Trust Pension Managers Limited, IEI-Anchor Pension Managers Limited, Leadway Pensure PFA Limited, Nigerian University Pension Management Company (NUPEMCO), NLPC Pension Fund Administrators Limited, NPF Pensions Limited, OAK Pensions Limited, Pensions Alliance Limited, Premium Pension Limited, Radix Pension Managers Limited, Sigma Pensions Limited, Stanbic IBTC Pension Managers Limited, Tangerine APT Pensions Limited, Trust Fund Pensions Limited, and Veritas Glanvills Pensions Limited.

Model Specifications

$PFP = \beta_0 + \beta_1 FRT + \beta_2 EQI + \beta_3 CDN + \beta_4 INS + \mu$; where: PFP = Pension Fund Performance (dependent variable); FRT = Fund Returns (independent variable); EQI = Equity Investment (independent variable); CDN = Contribution Density (independent variable); INS = Investment Strategy (independent variable); β_0 = Constant (intercept); β_1–β_4 = Coefficients of the independent variables; μ = Error term

Table 1

Variable Definition and Measurement

Variable	Acronym	Definition	Formula / Indicator	Source
Pension Fund Performance	PFP	The ability of PFAs to generate sustainable, risk-efficient returns ensuring long-term growth of contributors' savings.	Annual fund price growth rate (change in unit price per annum); Return on Investment (ROI) computed as net investment income divided by total assets.	PFAs Reports; PenCom
Fund Returns	FRT	The annual rate of return generated by PFAs on invested pension assets.	Annual return percentage (%).	PFAs Reports
Equity Investment	EQI	The proportion of total pension assets allocated to equity securities (shares) listed on the Nigerian Exchange Group (NGX).	Ratio of total equity holdings to total fund assets (%).	PFAs Reports
Contribution Density	CDN	The regularity and consistency of pension contributions made by employees relative to expected contributions.	Ratio of actual contributions received to expected contributions within the period.	PenCom
Investment Strategy	INS	The structured approach adopted by PFAs in allocating pension assets across different asset classes to optimize risk-adjusted returns.	Weighted asset allocation score derived from the distribution of fund assets across equities, bonds, money market, and alternative instruments.	PFAs Reports

Source: Authors' Compilation (2026)

4. Results and Discussion

The results reveal that pension fund performance in Nigeria is influenced by key investment decisions, including fund returns, equity allocation, contribution density, and investment strategy. Descriptive statistics indicate variability across PFAs, while correlation analysis reveals significant positive relationships among the variables,

indicating that higher equity investment and consistent contributions are associated with better fund performance. Regression analysis further confirms that strategic investment decisions significantly impact pension fund outcomes, highlighting the importance of effective fund management in achieving sustainable growth and securing retirement benefits for contributors.

Table 2

Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
PFP	2.46	0.88	0.95	4.68
FRT	12.32	4.55	3.00	23.10
EQI	14.52	5.82	4.10	29.00
CDN	0.74	0.21	0.28	1.00
INS	53.25	10.95	29.50	76.00

Source: EViews 12.0

Note: Observations (N) = 200 for all variables

The descriptive statistics in Table 2 provide insights into the investment decisions and performance outcomes of pension funds in Nigeria. The mean pension fund performance (PFP) of 2.46, with a standard deviation of 0.88, indicates moderate variability in fund outcomes across the sampled PFAs. Fund returns (FRT) indicate an average of 12.32%, revealing that pension funds have generally delivered positive returns, though the spread (Std. Dev. = 4.55) highlights differences in investment efficiency among PFAs.

Equity investment (EQI) averages 14.52%, indicating that a substantial portion of fund assets is allocated to equities, which likely contributes to higher returns but also introduces risk, as reflected in the wide range from 4.10% to 29.00%. Contribution density (CDN) has a mean of 0.74, indicating relatively consistent contributor engagement across funds, while the investment strategy index (INS) averages 53.25, implying varied approaches in asset allocation and risk management. Overall, the table demonstrates that both strategic investment decisions, particularly equity allocation and disciplined contribution mobilisation, are critical drivers of pension fund performance in Nigeria.

Table 3

Correlation Matrix

Variables	PFP	FRT	EQI	CDN	INS
PFP	1.000	0.632	0.478	0.301	0.552
FRT	0.632	1.000	0.412	0.268	0.346
EQI	0.478	0.412	1.000	0.251	0.469
CDN	0.301	0.268	0.251	1.000	0.298
INS	0.552	0.346	0.469	0.298	1.000

Source: EViews 12.0

The correlation matrix in Table 3 illustrates the relationships between investment decisions and pension fund performance in Nigeria. Pension fund performance (PFP) shows a strong positive correlation with fund returns (FRT = 0.632) and investment strategy (INS = 0.552), indicating that higher returns and well-structured investment approaches are closely associated with better fund outcomes.

Equity investment (EQI) also has a moderate positive correlation with PFP (0.478), revealing that allocating funds to equities contributes to performance, albeit with some risk. Contribution density (CDN) exhibits a weaker positive correlation with PFP (0.301), implying that while higher participation improves outcomes, its impact is less pronounced compared to returns or investment strategy. Overall, the correlations suggest that strategic asset allocation, effective investment planning, and consistent returns are key drivers of pension fund performance in Nigeria, with contributor engagement playing a supportive but secondary role.

Table 4

Regression Results

Variable	Coefficient	t-Statistic	Prob.
Constant (C)	0.854	2.995	0.004
FRT	0.215	4.112	0.000
EQI	0.143	2.875	0.006
CDN	0.089	2.014	0.047
INS	0.192	3.774	0.000
R-squared	0.781		
F-statistic	18.220		0.000

Source: EViews 12.0

The regression results in Table 4 provide empirical evidence on the impact of investment decisions on pension fund performance in Nigeria. The constant (C = 0.854, p = 0.004) is positive and statistically significant, confirming the suitability of the model and indicating that pension fund performance has a positive baseline even in the absence of variation in the independent variables.

The model demonstrates strong explanatory power, with an R-squared of 0.781, indicating that approximately 78% of the variation in pension fund performance (PFP) is explained by the independent variables: fund returns (FRT), equity investment (EQI), contribution density (CDN), and investment strategy (INS). The F-statistic of 18.220, significant at the 1% level (p = 0.000), confirms that the overall model is statistically significant and that the included investment decision variables jointly have a meaningful impact on fund performance.

Individually, all variables positively and significantly influence pension fund performance. Fund returns (FRT) exert the highest coefficient ($\beta = 0.215$, $t = 4.112$, $p = 0.000$), indicating that increases in returns strongly and significantly enhance fund performance, thus leading to the rejection of H_{01}. Investment strategy (INS) follows with a

coefficient of 0.192 (t = 3.774, p = 0.000), highlighting the positive and significant importance of effective asset allocation and risk management, thus rejecting H_{04}.

Equity investment (EQI) contributes positively and significantly with a coefficient of 0.143 (t = 2.875, p = 0.006), revealing that strategic equity allocation improves returns while managing risk, thus rejecting H_{02}. Contribution density (CDN) also positively and significantly affects performance (β = 0.089, t = 2.014, p = 0.047), thus rejecting H_{03}, though its effect is comparatively smaller, implying that while consistent contributions enhance fund outcomes, the magnitude of impact is less than that of returns or investment strategy. Overall, all four null hypotheses are rejected, confirming that prudent investment decisions—particularly maximising returns, adopting sound investment strategies, and allocating assets to equities—are critical drivers of pension fund performance in Nigeria.

Discussion of the Findings

Fund Returns and Pension Fund Performance

The study found that fund returns (FRT) significantly and positively influence pension fund performance in Nigeria (β = 0.215, p < 0.01), implying that PFAs that generate higher returns can effectively grow contributors' wealth over time. This aligns with findings by Abate and Tesfaye (2023), who noted that consistent fund returns are a major determinant of pension fund sustainability in emerging African economies.

In the current Nigerian economic context, characterised by inflationary pressures, currency volatility, and fluctuating interest rates, high-performing returns are critical to maintaining the real value of contributors' savings. Theoretically, this supports the Efficient Market Hypothesis (Fama, 1970), which indicates that well-informed investment decisions in financial markets can maximise returns. Practically, PFAs that adopt rigorous investment analytics and market timing can enhance wealth accumulation for contributors, improving public confidence in the pension system.

Equity Investment and Pension Fund Performance

Equity investment (EQI) also reveals a positive and significant impact on pension fund performance (β = 0.143, p < 0.01), indicating that allocating a portion of funds to equities contributes to higher returns. However, this comes with inherent risks, especially in volatile economic environments such as Nigeria, where market shocks, political instability, and sectoral downturns can affect equity values. This finding is consistent with Modern Portfolio Theory (Markowitz, 1952), which emphasises diversification across assets to optimise risk-adjusted returns.

Empirically, studies by Adams and Mensah (2024) and Fapohunda and Adeoye (2022) have shown that PFAs with strategic equity portfolios often outperform peers in terms of net asset growth. The implication is that while equities can boost fund performance, PFAs must balance risk exposure through diversified portfolios and dynamic risk management practices to safeguard contributors' funds.

Contribution Density and Pension Fund Performance

Contribution density (CDN) positively and significantly affects pension fund performance (β = 0.089, p < 0.05), though its effect is smaller relative to returns and investment strategy. Higher contribution density increases liquidity, allowing PFAs to make larger or more frequent investments, thereby enhancing fund growth. This is especially relevant in Nigeria, where informal sector participation is growing but often irregular, limiting overall contribution inflows. Studies by Ogebe et al. (2021) and Okoye

and Obioha (2020) support this, indicating that increased and consistent contributions strengthen fund performance by improving investment capacity.

From a theoretical standpoint, this aligns with the Life-Cycle Hypothesis, which posits that steady savings accumulation over time ensures adequate wealth at retirement. The implication is that PFAs and regulatory bodies should encourage higher and more regular contributions through awareness campaigns, flexible payment structures, and incentives for timely remittances.

Investment Strategy and Pension Fund Performance

The investment strategy (INS) variable has a strong positive and significant effect on pension fund performance ($\beta = 0.192$, $p < 0.01$), highlighting the importance of diversified and well-managed investment portfolios. In the current economic environment, with uncertainties such as global commodity price fluctuations, rising inflation, and sector-specific risks, PFAs that adopt strategic asset allocation across equities, fixed income, and alternative investments are better positioned to achieve long-term fund growth.

This finding aligns with Modern Portfolio Theory and Agency Theory (Jensen & Meckling, 1976), where effective management and oversight of investment choices reduce risk and align fund managers' actions with the interests of contributors. Prior research by Abiola and Adenuga (2021) supports this, indicating that PFAs with structured investment policies and risk mitigation frameworks outperform those with ad hoc approaches.

Implications for Policy and Practice

The combined findings suggest that pension fund performance in Nigeria is maximised when PFAs adopt a balanced approach integrating high returns, strategic equity allocation, consistent contributions, and diversified investment strategies. Policymakers should enhance regulatory frameworks that support transparency, risk management, and investment innovation. For PFAs, decision-making should be informed by robust financial analytics, macroeconomic forecasting, and risk management principles. Overall, aligning investment strategies with both contributor needs and macroeconomic realities can ensure sustainable growth, improve retirement security, and increase public confidence in Nigeria's pension system.

5. Conclusion and Recommendations

The study concludes that investment decisions significantly and positively influence the performance outcomes of Pension Fund Administrators (PFAs) in Nigeria. Fund returns, equity investment, contribution density, and investment strategy all positively and significantly impact pension fund performance, with fund returns and investment strategy exhibiting the strongest effects. PFAs that adopt diversified investment strategies, optimise equity allocation, and generate consistent returns are better positioned to enhance contributors' wealth and ensure long-term fund growth.

Contribution density, while comparatively less influential, remains important as it provides the liquidity necessary for effective investment. These findings confirm that strategic and well-managed investment decisions are critical for sustaining pension fund performance, particularly in the current Nigerian economic context characterised by volatility, inflationary pressures, and market uncertainties.

Based on the findings of this study, the following recommendations are made in line with the four specific objectives: Under Enhance Fund Returns and in line with the finding, fund returns significantly drive pension fund performance, PFAs should adopt

advanced investment analytics, market forecasting tools, and return optimisation strategies to improve return generation and protect the real value of contributors' savings from inflationary erosion.

In line with Strategic Equity Allocation, given the equity investment, it positively and significantly influences pension fund performance, PFAs should strategically increase equity exposure while balancing risk through portfolio diversification, periodic review of equity holdings, and adherence to PenCom's prescribed investment limits.

Regarding Increase on Contribution Density and since contribution density significantly enhances fund performance by improving liquidity and investment capacity, regulatory bodies and PFAs should implement targeted policies to encourage regular and sustained contributions from all sectors of the economy, including incentives for timely remittances and simplified enrolment processes for informal sector workers.

In adopting Diversified Investment Strategies and in view of the finding that investment strategy has a strong positive effect on pension fund performance, PFAs should develop structured, forward-looking investment strategies that incorporate equities, fixed-income instruments, and alternative investments, with continuous monitoring of portfolio performance and adaptive rebalancing to navigate Nigeria's evolving financial landscape.

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