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Sequence of Manuscript

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II. Abstract (150-250 words)
III. Keywords (3-5)
IV. Introduction
V. Literature Review
VI. Methodology
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IX. References (APA 7th Edition)
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PENSION COMMISSION'S REGULATIONS AND THE EFFECTIVENESS OF PENSION FUNDS INVESTMENT IN NIGERIA

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ABSTRACT

This study examines Pension Commission's (PenCom) regulations and the effectiveness of pension funds investment in Nigeria, focusing on five key variables: quality of investment instruments, conflict of interest, multi-fund structure, investment limits, and voting rights. Using primary data collected through structured questionnaires, administered to stakeholders, the study found that quality of instruments, mutual fund structure and investment limits have significant positive effects on pension fund asset investments, while conflicts of interest mitigation and voting rights have insignificant effects. The study concludes that PenCom regulations significantly affect effectiveness of Pension funds' investments. The study contributes to both policy development and academic discourse on pension governance in emerging markets, especially within Sub-Saharan Africa. The study recommends that regulators should continuously review and improve the design and accessibility of permissible investment instruments. In addition, training programs should be implemented for pension fund managers on evaluating and using complex instrument.

Keywords: PenCom regulation, investment instruments, conflict of interest, investment limits

21.0 Introduction

Pension fund investments play a crucial role in the international financial architecture, serving as a foundation for retirement income security and fostering economic resilience. Worldwide, pension funds oversee assets worth trillions of dollars, positioning them as powerful institutional investors (Afolabi et al., 2025). These resources are diversified across asset classes such as equities, bonds, property, and alternative instruments to secure returns for future retirees. Decisions on portfolio allocation are influenced by regulatory frameworks, market conditions, and strategic priorities. Nonetheless, pension funds are exposed to risks including market instability, governance shortcomings, and regulatory bottlenecks. The 2008 global financial meltdown highlighted their susceptibility to systemic shocks, resulting in stricter regulatory oversight in many economies (Tilba & Reisberg, 2019). Consequently, regulators adopted risk-based regimes and prudential investment standards. Still, debates persist regarding the adequacy of these measures in safeguarding pension wealth and ensuring sustainable performance (Leigh & Gershberg, 2022).

In Nigeria, the pension industry has undergone significant reforms, particularly with the Pension Reform Act (PRA) of 2004 and its 2014 amendment. The transition from a Defined Benefit Scheme to a Contributory Pension Scheme (CPS) aimed to address inefficiencies such as mismanagement, lack of transparency, and fiscal unsustainability (Afolabi et al., 2025). Despite these reforms, investment of Nigerian pension assets is hampered by regulatory constraints, limited diversification opportunities, and macroeconomic instability. Scholars argue that current regulatory frameworks may impede optimal returns by inadequately shielding against inflation, volatility, and governance concerns (Baltas et al., 2022). PenCom provides detailed rules on permissible asset classes, governance principles, and risk control mechanisms. Although these regulations protect contributors' savings, they also restrict investment flexibility and potential yields (Lichtenstern & Zagst, 2022). For instance, limitations on equities and alternative investments may prevent funds from exploiting high-yield opportunities in emerging markets (Sanfelici & Magnani, 2021). Rules on conflicts of interest and governance are equally important in managing pension portfolios. By discouraging insider activities and related-party transactions, such provisions enhance transparency and reduce misuse (Andonov et al., 2016). However, excessively stringent requirements may hamper efficiency and result in weak investment outcomes. This study evaluates the influence of regulatory provisions such as asset quality, conflict of interest controls, multi-fund design, investment limits, and shareholder rights on effectiveness of pension funds investment in Nigeria.

The quality of investment instruments remains critical, since safe assets like sovereign bonds and blue-chip equities preserve value but may underperform in inflationary contexts (Broeders et al., 2016). Conflict of interest policies are also pivotal; poor oversight and weak governance erode fund performance, while stronger controls improve outcomes (Trönnberg & Hemlin, 2022). Moreover, Nigeria's multi-fund arrangement allows participants to choose portfolios reflecting their risk preferences, theoretically enhancing returns. Although investment ceilings are introduced to mitigate risk, they may also suppress performance (Boado-Penas et al., 2020), whereas flexible regimes have been associated with improved fund outcomes (Kim & An, 2018). Pension funds further shape corporate governance through shareholder voting rights. In jurisdictions with strong investor rights, funds promote accountability and corporate efficiency (Tomassetti, 2022). Conversely, when voting rights are limited, their influence on governance reforms diminishes (Dressler & Mugerman, 2023).

Following the 2004 reforms, Nigeria's pension industry has expanded considerably. By June 2023, PenCom reported pension assets surpassing ₦15.7 trillion, covering over 10 million participants (Odeh & Nwosu, 2025). Nonetheless, over 65% of these assets remain tied up in government securities, reflecting overconcentration and weak diversification, with possible long-term return implications. These practical limitations underscore deeper theoretical debates. Ideally, pension assets should be allocated according to contributors' risk tolerance and the long-term profile of pension liabilities. Classical finance emphasizes diversification and risk-return balance, but such principles are often obstructed by rigid regulations and narrow fiduciary interpretations. Tilba and Reisberg (2019) observed that fiduciary duties are often interpreted conservatively, discouraging higher-risk, long-term strategies. Tomassetti (2023) further contended that modern fiduciary thinking should embrace social and intergenerational concerns, an approach largely absent in many regulatory contexts, including Nigeria.

Additionally, regulatory provisions such as investment quality, conflict of interest rules, voting rights, and portfolio limits carry practical as well as policy relevance. Poorly rated assets can threaten fund security, while conflicts of interest distort decision-making (Andonov et al., 2016). Likewise, the weak use of shareholder rights reduces pension funds' capacity to influence governance structures (Dressler & Mugerman, 2023). Although global research on pension fund governance has expanded, evidence from Nigeria remains limited and predominantly descriptive. This study thus aims to empirically analyze how PenCom's regulations affect pension investment practices in Nigeria, addressing a vital gap in scholarship and policy formulation.

The main objective of this study is to assess the effect of pension commission regulation on pension fund asset investment in Nigeria. The specific objectives are to:

i) Investigate the effect of quality of instruments on investment of pension fund asset in Nigeria.
ii) Examine the effect of conflict-of-interest mitigation on investment of pension fund asset in Nigeria.
iii) Assess the effect of multi-fund structure on investment of pension fund asset in Nigeria.
iv) Determine the effect of investment limits on investment of pension fund asset in Nigeria.
v) Investigate the effect of voting rights on investment of pension fund asset in Nigeria.

Accordingly, the study tests the following hypotheses:
H01: Quality of instruments has no significant effect on investment of pension fund asset in Nigeria.
H02: Conflict of interest mitigation has no significant effect on investment of pension fund asset in Nigeria.
H03: Multi-fund structure has no significant effect on investment of pension fund asset in Nigeria.
H04: Investment limits have no significant effect on investment of pension fund asset in Nigeria.
H05: Voting rights has no significant effect on investment of pension fund asset in Nigeria.

The research centers on five key variables: investment instrument quality, conflict of interest, multi-fund framework, investment ceilings, and shareholder voting rights. These dimensions were chosen due to their theoretical relevance and practical role in shaping asset allocation, portfolio outcomes, and fiduciary oversight within Nigeria's pension system. By concentrating on Nigeria, the study reflects the distinctive regulatory and institutional conditions that shape investment behavior in ways that differ from advanced markets. Data are obtained through structured questionnaires distributed to pension fund managers and investment practitioners in May 2025, ensuring both timeliness and contextual relevance of the analysis.

This research holds considerable value for stakeholders, especially the National Pension Commission (PenCom), as it delivers empirical insights into how instruments like investment ceilings, the multi-fund framework, conflict of interest regulations, and shareholder rights influence pension fund investment practices. By exposing regulatory gaps and constraints, the findings have the potential to inform policy adjustments that encourage diversification, strengthen risk-adjusted returns, and advance macroeconomic priorities such as infrastructure development. For fund managers, the study provides actionable guidance on enhancing portfolio outcomes while adhering to regulatory requirements.

2.0 Literature Review

This section discusses the conceptual reviews, review of empirical literature and presents the theoretical framework that underpins the research.

2.1 Conceptual Review

Investment of Pension Fund Asset

Pension fund asset investment refers to the deployment of accumulated retirement savings into various asset classes to ensure optimal returns and financial sustainability over the long term. These investments are typically diversified across equities, fixed income securities, real estate, infrastructure, and alternative investments, depending on regulatory guidelines and risk appetite (Aleksandar et al., 2017). The fundamental objective is to match assets with liabilities, particularly future pensioqn obligations, while balancing risk and return. Pension funds, due to their long-term investment horizons and relatively stable liabilities, are considered ideal institutional investors for illiquid and long-duration assets (Sanfelici & Magnani, 2021). However, their asset allocation is strongly influenced by regulatory frameworks, macroeconomic conditions, and governance structures (Broeders et al., 2016). For instance, Aleksandar et al. (2017) demonstrate that discount rate assumptions significantly affect asset allocation decisions, as lower discount rates often push pension funds toward riskier assets to meet return targets.

Pension Commission Regulation

Pension Commission Regulation, especially as implemented by Nigeria's National Pension Commission (PenCom), plays a pivotal role in shaping pension fund investment decisions. Regulations are primarily aimed at protecting contributors' interests, ensuring fund safety, and promoting long-term sustainability. These regulatory interventions cover areas such as approved investment instruments, portfolio diversification, risk mitigation, and governance standards (Boon et al., 2018). Moreover, pension regulation balances fiduciary responsibility and market dynamism, often aligning with global trends in sustainable investing and risk control (Lichtenstern & Zagst, 2022). In Nigeria, regulatory reforms such as the introduction of the multi-fund structure and stricter investment limits reflect PenCom's proactive approach to asset safety and improved returns (Kpessa-Whyte, 2011).

The quality of financial instruments permitted for pension fund investment is central to risk management and fund performance. PenCom's guidelines specify a range of eligible instruments, including government securities, corporate bonds, money market instruments, and infrastructure funds. These instruments are subjected to minimum credit ratings to mitigate default risks (Kpessa-Whyte, 2011). Globally, the emphasis on quality stems from past experiences where poorly rated instruments led to substantial losses for institutional investors during financial crises (Aleksandar et al., 2017). Nigerian pension regulation mirrors this cautious approach by excluding high-risk and speculative-grade securities from approved portfolios.

Conflict-of-interest mitigation is a critical focus of pension fund regulation to ensure fiduciary integrity and impartial decision-making. Pension fund managers, trustees, and board members may face incentives that do not align with beneficiaries' interests, particularly in privately negotiated or related-party transactions (Tilba & Reisberg, 2019). Nigerian regulations, under PenCom, explicitly prohibit pension funds from investing in instruments issued by their own sponsors or affiliates, and require full disclosure in all dealings (Kpessa-Whyte, 2011).

Nigeria's multi-fund structure, introduced by PenCom in 2018, was designed to tailor pension fund investment to the age and risk profile of contributors. This structure segments the Retirement Savings Account (RSA) fund into four sub-funds (Funds I to IV), each with different asset allocation limits and risk exposure levels. Younger contributors (under 49 years) are automatically placed in Fund II, which permits higher equity exposure, while older contributors (50 and above) are placed in Fund III, with a more conservative portfolio (Kpessa-Whyte, 2011). This structure aligns with lifecycle investment principles, which advocate for riskier asset classes at younger ages and capital preservation strategies closer to retirement (Boon et al., 2018). The approach also allows contributors to switch between funds, subject to regulatory conditions, thereby offering a level of investment personalization.

Investment limits are a core component of pension regulation, designed to promote diversification and limit exposure to risky or concentrated assets. In Nigeria, PenCom stipulates percentage-based ceilings for different asset classes, such as government bonds, equities, corporate debt, infrastructure, and alternatives, based on each fund category within the multi-fund framework (Kpessa-Whyte, 2011). Such limits prevent excessive risk-taking and reduce systemic vulnerabilities. Boon et al. (2018) argue that strict regulatory caps help mitigate herding behavior and market distortions caused by large institutional flows. Investment ceilings also reflect risk-adjusted asset performance and are periodically reviewed to align with macroeconomic shifts.

Voting rights confer the ability for pension funds to influence corporate governance in firms where they hold significant equity. Recognizing this, PenCom encourages pension fund administrators in Nigeria to actively exercise shareholder rights in line with contributors' interests (Kpessa-Whyte, 2011). This includes voting on key issues like board appointments, executive remuneration, and ESG policies. Dressler and Mugerman (2023) note that increased voting power often leads to better corporate responsibility, especially when pension funds act collectively.

2.2 Empirical Literature Review

Scholarship on pension fund investment and regulation has increasingly incorporated both financial and ethical perspectives in examining fund management. Aleksandar et al. (2017) provide an early foundation by analyzing how pension funds alter portfolio allocations in response to liability discount rates. Their findings reveal that lower discount rates drive funds toward riskier, higher-yield assets, illustrating how actuarial valuation assumptions can significantly shape investment strategies. This aligns with Broeders et al. (2016), who document herding behavior among pension funds, especially when confronted with market or regulatory pressures. While such convergence may protect individual fund managers, it introduces systemic risks to the broader financial system.

The role of regulation in guiding investment choices has been extensively emphasized. Boon et al. (2018) argue that stringent oversight often promotes overly cautious investment patterns, where compliance takes precedence over return maximization. This regulatory conservatism may limit innovation in portfolio management. Similar concerns are raised by Lichtenstern and Zagst (2022), who show that funds constrained by compliance rules and guarantees frequently adopt less-than-optimal strategies to safeguard solvency. Complementing this view, Andonov, Hochberg, and Rauh (2016) highlight that governance structures interact with regulation to influence performance, noting that financially skilled board members improve outcomes, particularly in sophisticated markets such as private equity.

Alongside financial considerations, ethical factors are increasingly shaping pension fund behavior. Hoepner and Schopohl (2020) demonstrate that political leanings of beneficiaries affect state pension fund investment, fostering a preference for socially responsible portfolios. In Korea, Kim et al. (2022) and Son and Kim (2022) provide evidence that large public funds like the National Pension Fund are progressively embedding environmental, social, and governance (ESG) standards in their investment approaches. Alda (2021) further differentiates between traditional Socially Responsible Investment (SRI) practices and deeper ESG integration within pension fund management. Collectively, these studies reveal that regulation functions not only as a financial safeguard but also as a normative instrument advancing sustainability agendas.

Corporate governance, whether internal or regulatory, continues to feature as a central theme. Akomea-Frimpong et al. (2022) show that strong institutional governance significantly improves pension fund performance in Ghana, reaffirming the need for effective oversight. Tomassetti (2023) extends this discussion by considering the fiduciary role of pension funds in labor solidarity, stressing that fiduciary duty has broadened beyond financial returns to include stakeholder accountability. In a related legal and ethical dimension, Leigh and Gershberg (2022) evaluate constitutional reforms in public pensions, cautioning that ambiguities in law can generate unclear mandates and threaten alignment with long-term financial goals.

Research on pension funds as active shareholders introduces another regulatory dimension. Tilba and Reisberg (2019) contend that fiduciary duty increasingly demands stewardship, urging funds to actively shape corporate governance. Dressler and Mugerman (2023) similarly find that institutional shareholder voting enables pension funds to exert significant influence over corporate behavior. Kim and An (2018) add that pension blockholdings are linked with enhanced corporate social responsibility, underscoring the strategic role of pension funds in shaping ethical business practices. Context-specific challenges have also been widely studied. Kpessa-Whyte (2011) compares reforms in Nigeria and

Ghana, identifying limited regulatory capacity, political interference, and low financial literacy as obstacles to efficient pension management. Sanfelici and Magnani (2021), focusing on Brazil, observe that while regulations safeguard against excesses, they sometimes curtail managers' ability to adapt to shifting markets. The technical demands of pension fund management are likewise under scrutiny. Baltas et al. (2022) analyze the influence of inflation, mortality, and uncertainty on defined contribution schemes, recommending that regulation adopt dynamic risk modeling. Similarly, Boado-Penas et al. (2020) advance a flexible actuarial framework aimed at delivering sustainable pensions without rigid guarantees, highlighting the importance of adaptive and data-informed regulation.

Taken together, the reviewed studies emphasize the multi-dimensional effects of regulation on pension fund investment. While regulatory oversight strengthens fiduciary integrity and market stability, it can simultaneously stifle innovation, reduce potential returns, and embed ideological expectations. As pension funds expand in size and complexity, achieving a balance between regulatory control, managerial discretion, and ethical accountability becomes increasingly vital.

2.3 Theoretical Framework

Institutional theory provides a valuable framework for analyzing the influence of regulation on pension fund asset allocation. Emerging from sociology and organizational research, the theory argues that organizational decisions are shaped not only by efficiency or economic rationality but also by adherence to established norms, rules, and institutional pressures (Alda, 2021). In the case of pension fund administration, regulatory authorities such as the National Pension Commission (PenCom) guide the practices of Pension Fund Administrators (PFAs) through three forms of isomorphic pressure: coercive, normative, and mimetic. Coercive isomorphism occurs when PFAs comply with statutory requirements to avoid penalties, such as regulations on investment ceilings, multi-fund structures, and asset quality standards. Normative pressures stem from professional codes and fiduciary expectations, which demand accountability, ethical conduct, and transparency in fund management. Mimetic isomorphism arises when PFAs replicate the strategies of peers perceived as effective, particularly in times of regulatory ambiguity. This tendency helps explain the herding patterns observed in pension investment studies (Broeders et al., 2016).

3.0 Methodology

This study adopts a survey research design, which is appropriate for collecting large-scale data on perceptions, attitudes, and practices relating to pension fund investment under regulatory oversight. The survey design allows the researcher to obtain first-hand responses from pension fund managers, regulators, and institutional investors across Nigeria. It is cost-effective, allows for generalization of results, and supports the statistical testing of relationships among variables (Creswell & Creswell, 2018). Surveys are also widely used in pension and finance studies to assess regulatory impacts and stakeholder behavior (Akomea-Frimpong et al., 2022; Sanfelici & Magnani, 2021). The design is particularly suited to cross-sectional studies where the objective is to analyze current phenomena without manipulating the research environment.

The research is grounded in the positivist philosophy, which assumes that social reality is objective and can be measured through observable phenomena. Positivism supports the use of scientific approaches and statistical analysis to test hypotheses and draw conclusions (Saunders et al., 2019). In the context of this study, positivism provides a structured framework to examine the empirical relationship between pension regulation and asset investment, using quantifiable data and econometric models. It aligns with similar studies on pension fund governance and investment patterns (Andonov et al., 2016; Aleksandar et al., 2017).

The population of the study comprises stakeholders in the Nigerian pension industry, including investment officers, portfolio managers, compliance officers, and regulatory staff of the National Pension Commission (PenCom). This is an infinite population as the number of people in this sector is not known. A stratified random sampling technique is adopted to ensure that all stakeholder categories are proportionately represented. The target sample size is 450 respondents, determined based on recommendations by Krejcie and Morgan (1970) and similar pension fund studies (Akomea-Frimpong et al., 2022). The strata include representatives from Pension Fund Administrators (PFAs), Closed Pension Fund Administrators (CPFAs), and regulators. Stratification enhances the precision of estimates and ensures that diverse perspectives on regulation and investment decisions are captured. The sampling ensures generalizability of findings across the Nigerian pension ecosystem.

Primary data was collected using structured questionnaires distributed both physically and electronically. The questionnaire was pre-tested and validated to ensure clarity and reliability. This approach allows the collection of standardized responses from a wide geographical spread within Nigeria. The use of structured questionnaires facilitates consistency in data collection, enabling quantification and regression analysis. Prior studies in pension governance and investment behavior (Kim et al., 2022; Trönnberg & Hemlin, 2022) have also employed questionnaires for empirical validation of institutional and regulatory constructs. 450 questionnaires were administered using both physical and online channels, and a total of 395 were retrieved. 55 of the questionnaire were not fully completed and hence not included as valid data.

The study employs multiple linear regression analysis to evaluate the effect of pension regulation on asset investment. Regression is suitable for establishing the direction and strength of relationships among multiple variables. It allows the researcher to control for other influencing factors such as firm size, regulatory experience, and market volatility. This technique is supported by prior pension investment literature (Aleksandar et al., 2017; Boon et al., 2018) and ensures statistical rigor. STATA software was used for data analysis. The model was tested for multicollinearity, heteroskedasticity, and goodness of fit to ensure robustness. Descriptive statistics and correlation analysis will be conducted before the regression.

Dependent and independent variables were measured using a structured Likert-scale questionnaire (ranging from 1-Strongly Disagree to 5-Strongly Agree). Pension fund asset investment is the dependent variable, measured through investment diversity, risk-adjusted return, and portfolio size. The independent variable, Pension Commission Regulation, is disaggregated into five constructs: Quality of Instruments, Conflict-of-Interest Mitigation, Multi-Fund Structure, Investment Limits, and Voting Rights. Each construct is measured through multiple items developed from the reviewed literature (Boon et al., 2018; Leigh & Gershberg, 2022). The questionnaire was peer-reviewed and pilot-tested with 100 respondents to ensure internal consistency and construct validity. Cronbach's Alpha was calculated to verify reliability, with a threshold of 0.70 considered acceptable. The Cronbach Alpha for the variables ranged between 0.89 and 0.92, indicating that the instruments measurements were internally consistent. In line with the institutional theory and empirical studies (Boon et al., 2018; Leigh & Gershberg, 2022), the following regression model was used to test the hypotheses.

Table 1: Descriptive Analysis

Variable	Mean	Std. Dev.	Min	Max
Pfi	2.892	0.887	1	5
Qin	3.067	1.067	1	5
Cin	2.992	1.033	1	5
Mtf	2.950	1.122	1	5
Inl	2.975	1.049	1	5
Vtr	2.992	1.008	1	5

The descriptive statistics provide insights into respondents' views on pension fund asset investment and its regulatory factors. Pension Fund Asset Investment recorded a mean of 2.892 with a standard deviation of 0.887, indicating that investment practices in Nigeria are perceived as below optimal, possibly reflecting limited diversification or inefficient allocation by fund administrators. Among the regulatory indicators, the Quality of Instruments had the highest mean score of 3.067 with a standard deviation of 1.067. This suggests that respondents generally regard the quality of instruments available under PenCom regulations as fair, though the wide variation indicates differing access to or perceptions of secure, high-return assets. Conflict-of-Interest Mitigation and Voting Rights both reported mean values of 2.992, with standard deviations of 1.033 and 1.008, pointing to neutral perceptions of their effectiveness in reducing conflicts and ensuring trustee participation.

The Multi-fund Structure returned a mean of 2.950 and standard deviation of 1.121, showing slightly below-average perceptions and diverse views on its implementation. Investment Limits recorded a mean of 2.975 and a standard deviation of 1.049, reflecting mixed opinions, with some seeing limits as vital for risk management while others view them as restrictive. Voting Rights similarly produced a neutral mean of 2.992 with a standard deviation of 1.009, indicating inconsistent influence on governance and investment outcomes.
Secondly, normality test was conducted to determine the symmetry of the variables.

Table 2: Normality Test

Variable	W	V	Z	Prob>z
Pfi	0.992	0.782	-0.552	0.709
Qin	0.991	0.907	-0.217	0.586
Cin	0.993	0.642	-0.991	0.839
Mtf	0.985	1.426	0.794	0.213
Inl	0.996	0.422	-1.931	0.973
Vtr	0.996	0.386	-2.131	0.983

The Shapiro-Wilk test indicates that the data for all the variables are normally distributed. This is based on the insignificant p values obtained from the test. Thus, the parametric analysis chosen is suitable for this study.

Next, correlation analysis was conducted to determine the strength and direction of the linear relationships between the independent variables (regulatory mechanisms) and the dependent variable (pension fund asset investment). The results are presented in Table 3 below:

Table 3: Correlation Analysis

Variables	Pfi	qin	Cin	Mtf	inl	Vtr
Pfi	1.0000					
Qin	0.3541	1.0000				
Cin	0.0953	0.1225	1.0000			
Mtf	0.3198	-0.0393	-0.0366	1.0000		
Inl	0.4036	0.1742	0.1704	0.3132	1.0000	
Vtr	-0.0081	0.0825	0.6574	0.1334	0.0077	1.0000

The correlation matrix table shows that all the variables have positive relationships with pension fund investment, except voting rights and which has a negative but insignificant relationship. Investment limits has the strongest positive association with pension fund investment, followed by quality of infrastructure and mutual fund structure. Looking at the relationships among pairs of independent variables, the results suggest mild correlation. This indicates that there is absence of harmful multicollinearity among the independent variables.

Next, this study conducts regression analysis in order to test the study hypotheses. The regression analysis was conducted to evaluate the effect of pension commission regulations on pension fund asset investment in Nigeria. The independent variables included quality of instruments, conflict-of-interest mitigation, mutual fund structure, investment limits, and voting rights.

Table 4: Regression Analysis

Variables	Coef	Std. Err.	T	P>t
Qin	.2668366	.0661405	4.03	0.000
Cin	.1131156	.0936856	1.21	0.230
Mtf	.2248172	.0677748	3.32	0.001
Inl	.2007138	.0734765	2.73	0.007
vtr	-.1415556	.095145	-1.49	0.140
Cons.	.8981164	.3530163	2.54	0.012
R-Squared		0.3142		
Adj. R-Squared		0.2842		
F.		10.45		
Prob.		0.0000		

Quality of Instruments emerged as the most significant predictor of pension fund asset investment, with a coefficient of 0.267 and a p-value of 0.000. This result is statistically significant at the 1% level, suggesting that improvements in the quality and credibility of investment instruments positively influence asset allocation decisions. Similarly, the Mutual Fund Structure (multi-fund investment design) had a positive coefficient of 0.225 and a p-value of 0.001, indicating a strong and statistically significant effect on asset investment. Investment Limits also showed a significant and positive influence, with a coefficient of 0.2001 and a p-value of 0.007, suggesting that regulatory caps on specific asset classes or exposures help guide fund managers toward optimal diversification. In contrast, Conflict-of-Interest Mitigation presented a coefficient of 0.113 with a p-value of 0.230, indicating a positive but statistically insignificant effect. Lastly, Voting Rights demonstrated a negative coefficient of -0.142 and a p-value of 0.140, suggesting an inverse but statistically insignificant relationship with pension asset investment.

The hypotheses of this study were stated in the null form, positing that each regulatory variable has no significant effect on pension fund asset investment in Nigeria. The test of these hypotheses was based on the regression analysis, specifically evaluating the significance of the coefficients using p-values at a 5% level of significance.

The regression results revealed a coefficient of 0.267 with a p-value of 0.000, indicating a statistically significant positive effect. Since the p-value is less than 0.05, the null hypothesis is rejected, suggesting that the quality of investment instruments significantly influences pension fund asset allocation. The coefficient for this conflict of interest mitigation is 0.113 with a p-value of 0.230, which exceeds the 0.05 threshold. Hence, the null hypothesis is not rejected, implying that conflict-of-interest mitigation mechanisms do not significantly affect pension fund investment decisions in the context of this study.

The estimated coefficient for multi-fund structure is 0.225, with a p-value of 0.001, demonstrating a significant positive relationship. Therefore, the null hypothesis is rejected, indicating that the implementation of a multi-fund structure significantly influences pension asset investment patterns. With a coefficient of 0.2001 and a p-value of 0.007, this variable is also statistically significant. The null hypothesis is thus rejected, confirming that investment limits have a meaningful impact on pension fund asset allocation. Although the coefficient for voting rights is -0.142, the p-value is 0.140, which is above the 0.05 level. Thus, the null hypothesis is not rejected, indicating that voting rights do not exert a statistically significant influence on pension fund investment.

The positive and significant influence of quality of investment instruments aligns with Aleksandar et al. (2017), who argued that pension funds adjust their investment strategies based on actuarial assumptions such as discount rates, often gravitating toward higher-yield assets when instruments are well-defined. Similarly, Boon, Brière, and Rigot (2018) observed that in highly regulated environments, funds seek safe, high-quality assets to avoid compliance risks, supporting the present study's assertion that the clarity and quality of instruments guide asset allocation.

In terms of the multi-fund structure, the significant effect recorded mirrors the findings of Broeders et al. (2016), who emphasized that pension funds may herd or imitate asset strategies under regulatory or peer pressure. This aligns with the multi-fund system's incentive to segment contributors by risk profile, thereby promoting diversified investment. Additionally, the result resonates with Lichtenstern and Zagst (2022), who cautioned that without flexibility, compliance mandates could lead to suboptimal allocations; however, the Nigerian case appears to show multi-fund regulation enhances rather than hinders investment effectiveness.

Investment limits were also found to significantly influence asset investment, echoing the regulatory insights of Andonov, Hochberg, and Rauh (2016), who highlighted how structural oversight can restrict excessive risk-taking and improve fund outcomes. This finding also finds indirect support in Baltas et al. (2022) and Boado-Penas et al. (2020), who argue for dynamic risk-based modeling rather than rigid frameworks. While limits may be seen as constraints, in this case, they appear to serve as effective risk control mechanisms without overly stifling returns.

However, the insignificant impact of conflict-of-interest mitigation stands in contrast to the findings of Akomea-Frimpong et al. (2022), who noted that governance quality strongly correlates with pension fund performance in Ghana. This discrepancy might stem from the weak institutional enforcement of ethical guidelines in Nigeria, as Kpessa-Whyte (2011) pointed out in his comparison of Ghana and Nigeria's pension landscapes, citing poor regulatory capacity and political interference as critical constraints.

Similarly, the non-significant effect of voting rights challenges the evidence presented by Dressler and Mugerman (2023) and Tilba and Reisberg (2019), who argued that pension funds can meaningfully shape corporate governance through stewardship and voting power. While these findings hold in more mature capital markets, the Nigerian context, as highlighted by Leigh and Gershberg (2022), may lack the legal and institutional clarity needed to translate voting rights into actual influence—hence the lack of observed effect.

The study's findings also indirectly relate to the broader shift toward ethical and ESG investing, noted by Hoepner and Schopohl (2020) and Alda (2021). While this study did not directly test ESG integration, the underlying message is clear: regulatory design can no longer be divorced from ideological goals such as sustainability. That voting rights and conflict-of-interest rules have limited impact may reflect a lack of institutional orientation toward ESG frameworks, a point that Kim, Son, and Jin (2022) also raised in their Korean context.

Finally, this study supports the broader institutional theory framework, emphasizing that formal structures (laws, limits, and policies) shape behavior only to the extent that institutions are legitimate, consistent, and effectively enforced. This echoes Tomassetti's (2023) argument that fiduciary responsibility now includes broader stakeholder accountability, not just financial optimization. In the Nigerian pension context, this evolution appears to be partial and uneven, with some mechanisms like investment limits and fund structuring proving effective, while others like governance engagement remain underutilized or poorly implemented.

To validate the robustness and reliability of the regression results, diagnostic tests were conducted for multicollinearity and heteroscedasticity, two common issues that can distort regression estimates and affect inference.

Table 5: Multicollinearity Test

Variable	VIF	1/VIF
Cin	1.98	0.505101
Vtr	1.95	0.514010
Inl	1.26	0.796489
Mtf	1.22	0.818729
Qin	1.05	0.950018
Mean VIF	1.49	

The Variance Inflation Factor (VIF) was employed to detect multicollinearity among the independent variables. The VIF values obtained ranged between 1.05 and 1.98, which are well below the commonly accepted threshold of 10, and even the more conservative threshold of 5, as proposed by Hair et al. (2019). This indicates the absence of harmful multicollinearity, suggesting that each independent variable contributes unique information to the model and that the regression coefficients are stable and interpretable.

Table 6: Heteroscedasticity Test

Ho:	Constant variance
Variables: fitted values	of pfi
chi2(1)	0.01
Prob > chi2	0.9027

The heteroscedasticity test result indicated an insignificant chi2, indicating that the homoscedasticity assumption of the OLS regression is not violated.

5.0 Conclusion and Recommendation

This study examined pension commission's (PenCom) regulations and the effectiveness of pension funds investment in Nigeria, focusing on five key variables: quality of investment instruments, conflict-of-interest mitigation, mutual fund structure, investment limits, and voting rights. The study concludes that Quality of Investment Instruments significantly influences pension fund asset investment in Nigeria, suggesting that clarity, standardization, and accessibility of instruments matter for decision-making. Similarly, Mutual Fund Structure positively influences pension asset investment, suggesting that stratification of funds helps align risk-return expectations with contributor profiles. Furthermore, Investment Limits have a positive impact, confirming that appropriate regulatory boundaries can enhance responsible investing without stifling returns. However, Conflict-of-Interest Mitigation has no significant effect, indicating weak institutional enforcement or limited awareness among pension fund stakeholders. In addition, Voting Rights were found to be statistically insignificant, pointing to limited shareholder engagement or weak enforcement of corporate governance mandates.

The study recommends as follows:

i. Regulators should continuously review and improve the design and accessibility of permissible investment instruments. In addition, training programs should be implemented for pension fund managers on evaluating and using complex instrument.

ii. Pension fund governance codes should be revised to define conflict-of-interest scenarios more explicitly. Similarly, mandatory declarations and disclosures by board members and fund managers should be enforced.

iii. Sensitization campaigns should inform contributors about the benefits of selecting appropriate fund types. Also, regulators should monitor and evaluate fund performance by type to identify improvement areas.

iv. Current investment limits should be maintained but reviewed annually for relevance. Also, stress testing mechanisms should be included to determine how limits respond under volatile markets.

v. Pension funds should be mandated to disclose how they vote at shareholder meetings. In addition, guidelines should promote active shareholder engagement by pension trustees

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