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THE ANALYSIS OF NET ASSET VALUE AND THE PERFORMANCE OF PENSION FUNDS IN NIGERIA

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Abstract

Pension funds play a crucial role in ensuring the financial security of retirees by offering long-term savings and investment solutions. A key indicator of their performance is the Net Asset Value (NAV), which reflects the total market value of all assets under management (AUM) by pension fund administrators, after deducting liabilities. This highlights the important contribution of pension funds to Nigeria's economic growth. However, issues such as administrative inefficiencies, bureaucracy, corruption, and economic downturns have resulted in inconsistent and inadequate pension benefit payments (Aderibigbe, 2021). Additional challenges like the mistreatment of retirees and reductions in pension benefits exacerbate the situation. This paper explores the relationship between NAV and the performance of pension funds in Nigeria, addressing these ongoing challenges. The research utilizes secondary data from 12 licensed Pension Fund Administration companies over a ten-year period from 2012 to 2023, employing a judgmental sampling technique. The data was analysed using the Pearson's product moment correlation. To recognise the relationship existing between the independent and dependent variables. The analysis focuses on NAV and pension fund performance, findings revealing a moderate positive correlation (0.44) between NAV and pension fund performance (profit before tax). The paper recommends the establishment of effective governance frameworks, including well-functioning boards and audit committees, to enhance decision-making, risk management, and overall fund performance.

Keyboard: - Net Asset, Performance, Pension, Pension fund, Nigeria.

Introduction

In Nigeria, pension funds are essential for ensuring the financial security of retirees by providing long-term savings and investment solutions. A key measure of their performance is the Net Asset Value (NAV), which represents the total market value of all assets under management (AUM) by pension fund administrators, minus liabilities. NAV serves as a critical benchmark for evaluating the health, growth, and efficiency of these funds in generating returns for contributors.

Globally, about 68 percent of people over the retirement age receive an old-age pension,

according to the International Labor Organization (2018) and Hinrichs (2021). This percentage is expected to rise, driven by increasing urbanization by 2050, as projected by He et al. (2021). However, pension coverage varies by region. For instance, Isaka and Ndanshau (2021) highlighted that Europe and Asia have around 95.2 percent pension coverage, the U.S. 86.2 percent, while in Africa, only 29.6 percent of older adults receive pensions.

Over the years, Nigeria's pension fund industry has seen significant growth in NAV, largely due to regulatory reforms and diversified investment strategies. The Pension Reform Act of 2014 further strengthened the sector by improving transparency and governance. The performance of these pension funds is vital not only for individual financial security but also for the broader Nigerian economy. Pension funds are key players in capital market development, with investments in sectors like housing stocks, Nigerian Federal Government securities, treasury bills, and agency bonds (Martí-Ballester, 2020). Additionally, part of these funds is allocated to foreign stocks, expanding their impact. Oyedokun et al. (2022) describe pension funds as pooled resources that are invested to support capital markets and help the government meet its financial needs. As institutional investors, these funds enhance corporate governance, business transparency, and overall performance.

Aminu (2022) reported a 0.98% increase in the total income of Nigerian pension funds in July 2021, alongside 22,349 new RSA registrations, raising the total number of shareholders to 9.4 million. This underscores the significant role pension funds play in driving Nigeria's economic growth. However, challenges such as administrative bottlenecks, bureaucracy, corrupt practices, and economic slowdowns have led to irregular and limited pension benefit payments (Aderibigbe, 2021). Issues like the mistreatment of retirees and the reduction of pension benefits further compound the problem.

This paper will examine the relationship between NAV and the performance of pension funds in Nigeria, addressing these challenges. By identifying performance criteria for Pension Fund Administrators (PFAs) and their impact on Nigeria's pension system, this research aims to fill gaps in the current literature. The findings will contribute to greater accountability among pension fund managers, ensuring secure investments and reliable pension benefits for retirees. Additionally, the paper will provide valuable insights for future academic

research and practical policymaking in the field of pension fund management.

In recent years, retirement issues have received great attention in many countries. More recently, pensions have attracted the attention of policymakers as a means of facilitating private pension savings for an aging workforce Nagarajan and Sixsmith (2023); Redonda et al (2019); Ganapathy (2021). However, the factors driving the financial performance of pension fund administrators remain unclear. Hence, this paper seeks to ascertain the impact of net asset value on the performance of pension funds in Nigeria and analyze the overall financial performance of pension funds in the country.

Review of Literature

Define Pension

A pension is a structured financial system that provides regular payments to individuals who have retired due to age, disability, or the completion of a specified period of service. These payments are typically designed to last throughout the retiree's lifetime and may also extend to their surviving spouses or dependents.

According to Abubakar (2014), retirement benefits can also include a one-time lump sum payment given to employees when they leave the workforce. This pension system serves as a means of income redistribution, offering financial support to retired individuals who have dedicated a significant portion of their lives to work, as discussed by Odia and Okoye (2012).

Pension schemes are generally managed by government agencies, private companies, or other organizations to provide a safety net against the financial challenges and uncertainties that come with aging. In many developed countries, pension plans extend beyond retirees to include vulnerable groups such as widows, orphans, and people with disabilities through specialized pension programs.

The primary goal of pension programs is to protect retirees and elderly individuals from financial hardship, poverty, and the risks associated with aging. These programs also encourage a culture of saving among workers, fostering financial preparedness for retirement.

Pension fund

A pension fund is a financial system designed to ensure that retired employees receive regular pension payments after leaving the workforce. As an institutional investor, it directs significant capital into a wide range of public and private investments. Typically, the management of these pension

funds is the responsibility of employers, who oversee the investment pools to meet the retirement needs of their employees.

Financial Performance of the pension Fund

The performance metric used in this research is the unit price, a key performance indicator within the pension sector and a widely recognized concept in fund accounting. It is determined by dividing the net asset value of the pension fund by the total number of units held in the fund. The unit price is updated daily to reflect changes in the net asset value, driven by market fluctuations and withdrawals. Essentially, the unit price measures the returns generated by the fund's assets, as highlighted by Demody and Paino (2005).

Financial Performance of Pension Funds

The financial performance of pension funds is a critical measure of how effectively these funds manage the assets entrusted to them by contributors. The primary goal of a pension fund is to generate consistent returns that can meet future liabilities, ensuring that retirees receive adequate benefits upon retirement. Financial performance is typically evaluated through several key indicators, including Net Asset Value (NAV), unit price, investment returns, and the fund's risk-adjusted performance over time.

In Nigeria, the Pension Reform Act of 2014 significantly transformed the pension industry, resulting in improved governance and investment diversification, which have enhanced the financial performance of pension funds. According to a report by the National Pension Commission (PenCom), pension fund assets grew from ₦3 trillion in 2012 to over ₦14 trillion by mid-2021, demonstrating substantial asset accumulation and financial growth (PenCom, 2021). The increase in NAV over time is a direct reflection of the fund's ability to generate returns from a diverse range of investments, including government bonds, equities, real estate, and foreign assets (Odia & Okoye, 2012).

Another important measure of financial performance is the unit price, which reflects the daily market value of the fund's underlying assets. Demody and Paino (2005) explain that the unit price serves as a gauge for tracking the returns generated by the fund's investments. A higher unit price indicates strong performance, as it suggests that the value of the pension fund's assets is increasing relative to the number of units held.

The financial performance of pension funds is also affected by external factors such as market volatility, interest rates, inflation, and

regulatory changes. According to Aminu (2022), Nigerian pension funds saw a 0.98% increase in income in July 2021, highlighting the resilience of pension fund portfolios despite economic challenges. Moreover, pension funds act as institutional investors, contributing to economic growth by injecting capital into sectors like infrastructure, government securities, and corporate bonds (Oyedokun et al., 2022).

In conclusion, the financial performance of pension funds is vital for ensuring the sustainability of retirement benefits. By analyzing indicators such as NAV, unit price, and investment returns, fund managers can assess the health of the pension system and make strategic adjustments to maximize returns while managing risks. The continuous growth of pension fund assets in Nigeria demonstrates the sector's ability to provide stable financial support to retirees and contribute to long-term economic development.

Pension Net Asset Value (NAV)

The *Net Asset Value (NAV)* of a pension fund is a critical financial metric used to measure the total value of the assets held by the fund, minus any liabilities. It represents the total market value of the pension fund's investments, which may include stocks, bonds, real estate, and other financial instruments. NAV is a key indicator of the overall financial health of a pension fund and its ability to meet its future obligations to retirees.

NAV is calculated using the following formula:

$$\{NAV\} = (\text{Total Assets} - \text{Liabilities}) / \text{Number of Unit}$$

This value fluctuates regularly based on market conditions, the performance of the fund's investments, and any withdrawals or distributions made to retirees. NAV is typically updated daily to account for these changes, providing a dynamic reflection of the pension fund's current value. As Demody and Paino (2005) explain, the unit price, which is directly tied to NAV, serves as a gauge of the returns generated by the pension fund's underlying assets.

The significance of NAV lies in its ability to reflect the performance of a pension fund and its capacity to fulfill future pension obligations. A rising NAV indicates that the fund's investments are generating returns and increasing in value, positioning the fund to meet its long-term liabilities to retirees. Conversely, a decline in NAV may suggest underperformance or market volatility, prompting fund managers to reassess their investment strategies.

In Nigeria, the pension fund industry has seen remarkable growth in NAV over the years. According to the National Pension Commission (PenCom), the total NAV of Nigerian pension funds rose from ₦3 trillion in 2012 to over ₦14 trillion by mid-2021 (PenCom, 2021). This growth has been attributed to increased contributions, effective investment strategies, and regulatory reforms introduced by the Pension Reform Act of 2014, which strengthened governance, transparency, and risk management in the pension sector (Odia & Okoye, 2012).

The role of NAV is essential in ensuring that pension funds can meet their obligations. As Oyedokun et al. (2022) point out, pension funds act as institutional investors, channeling substantial capital into various sectors of the economy. This investment not only contributes to economic growth but also helps ensure the sustainability of pension funds by generating returns that increase the NAV.

The NAV of a pension fund is a vital performance metric, providing insight into the fund's financial stability and its ability to meet future obligations to retirees. Monitoring and managing NAV is essential for ensuring the long-term success of pension funds, particularly in Nigeria, where the pension industry plays a crucial role in the economic landscape.

Theory adopted

Endogenous Growth Theory

The theory of endogenous growth, as proposed by Folster and Henrekson (1997), posits that productivity can be enhanced by consistently providing workers with the necessary tools for their tasks. Moreover, this theory asserts that the pace of economic advancement is determined by internal institutional processes rather than external factors Alam et al. (2021). These internal forces influence the mechanisms of economic growth, encompassing heightened innovation, greater investments, and technological advancements. Consequently, this theory establishes a conceptual framework for examining the relationship between financial prosperity and economic growth.

Also, the foundation of this paper lies in the theory of financial intermediation, initially formulated by Carapella and Flemming (2020) . Financial intermediaries serve as intermediaries in financial transactions, acting as a bridge between parties. It is crucial to examine the role of pension funds as intermediaries and their contribution to enhancing capital markets. Advocates of the prevailing theory of intermediation argue that although pension funds do not offer

readily available assets, they significantly impact the composition of securities markets, thereby enhancing the effectiveness of financial systems.

i. ***Stakeholder Theory***

Introduced by Edward Freeman in 1984, this theory defines stakeholders as groups and individuals affected by an organization's decisions. The objective is to address their needs and interests, such as pensioners and contributors in the context of a Pension Fund Administrator.

ii. ***Fund AccountingTheory:***

Formulated by William Joseph Vatter in 1947, this theory is used by government entities and non-profit organizations. It involves funds with specific restrictions and objectives, with assets earmarked for designated purposes and liabilities imposing constraints.

iii. ***Financial Intermediation Theory***

Originating in the 1960s, this theory focuses on the role of financial intermediaries, such as pension funds, in facilitating transactions between parties. It argues that while pension funds may not provide liquid liabilities, they enhance the efficiency of financial systems by influencing the structure of securities markets.

iv. Theory of Immunization

Redington (1952) introduced the concept of "immunization" to protect assets from interest rate fluctuations, as noted by De Felice (2000). Tijjani (2014) expanded on this theory by emphasizing the need for a pension fund to structure its assets to support its liabilities, shielding it from financial risks that could affect these liabilities. This theory suggests that funds should be "immunized" against losses by strategically aligning assets and liabilities. This creates a protective barrier that safeguards the fund from unforeseen financial downturns, ensuring its stability and longevity in changing economic conditions.

This section outlines the research methodology used to examine the correlation between Return on Investment (ROI) and the performance of pension funds in Nigeria. The primary objective of the research design is to enable a structured analysis of the collected data, allowing the researcher to present the key findings with clarity and precision. The paper aims to reveal the underlying dynamics of how ROI impacts the performance of pension funds within the Nigerian context.

Methodology

The paper population includes the twelve licensed Pension Fund Administrators (PFAs) in Nigeria, following previous research on pension fund performance (Adeyinka et al., 2018). Spanning a ten-year

period from 2011 to 2023, this research provides a comprehensive dataset for analysing long-term trends in pension fund performance. A purposive sampling technique, a non-probability method that allows the researcher to select participants based on informed judgment, will be employed (Saunders, Lewis, & Thornhill, 2019). The focus will be on the six most relevant pension fund investments in Nigeria to capture the most significant trends in the data.

The paper will examine variables such as contributions, profit before tax, profit after tax, investment income, total investment, and net assets. These variables will provide insights into ROI and allow for an assessment of the role of Net Asset Value (NAV) in relation to pension fund performance in Nigeria, in line with the methodology used by Oyedokun et al. (2022). Secondary data sources will be utilized, including official reports from the National Pension Commission (PenCom), the Central Bank of Nigeria (CBN), financial statements from Nigerian PFAs, and audited reports. Additionally, World Bank reports on pension funds will be included. The reliance on secondary data analysis is a well-established approach in pension fund research, facilitating a detailed examination of available data.

The data was analysed using the Pearson's product moment correlation. To recognise the relationship existing between the independent and dependent variables. Dependent Variable is the performance of fire insurers' pre-covid era market was the dependent variable for the paper. Independent Variable of Fire insurance rating variables of the paper. The variable are Claim Settlement (CLM), Investment Portfolio (INV), Profitability (PBT), Premium Income (PIF), Premium Rating (PMR), and Shareholder's Fund (SHF).

DATA ANALYSIS

Table A Descriptive Statistics

	CTN	NET	PBT	PBT_REL_IN...	TIT	TIT_REL_IN...
Mean	1.55E+08	19538673	5669262.	224.7612	1.41E+09	105732.1
Median	5669392.	5516535.	2084115.	82.62594	1333289.	100.0000
Maximum	3.72E+09	3.24E+08	67953176	2694.044	3.44E+10	2577802.
Minimum	3497.000	57655.00	89282.00	3.539637	13827.00	1.037060
Std. Dev.	5.98E+08	61463879	13662337	541.6514	6.43E+09	481969.5
Skewness	5.321574	4.325560	3.768362	3.768362	4.450631	4.450631
Kurtosis	31.78370	20.18831	16.14269	16.14269	21.38487	21.38487
Jarque-Bera	1648.111	647.9897	401.6818	401.6818	730.1626	730.1626
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	6.50E+09	8.21E+08	2.38E+08	9439.971	5.92E+10	4440747.
Sum Sq. Dev.	1.47E+19	1.55E+17	7.65E+15	12028835	1.69E+21	9.52E+12
Observations	42	42	42	42	42	42

Interpretation

The statistical analysis of the dataset on pension fund performance in Nigeria reveals several key insights. The mean values indicate the average level of each variable. For instance, the average level of contributions (CTN) is approximately 155 million, while the net asset value (NET) averages around 19.5 million. The performance of pension funds (PBT) has a mean of about 5.67 million, and the average return on investment (TIT) is an impressive 1.41 billion. The performance and investment relative indices (PBT_REL_IND and TIT_REL_IND) have average values of 224.76 and 105,732.1, respectively.

The median values show the central point of the data, where half of the observations are above and half are below. In some cases, such as NET and PBT, the median values are significantly lower than the mean, indicating a skewed distribution. The standard deviation figures are high across all variables, pointing to substantial variability within the data. This is particularly notable in the TIT and CTN, where the standard deviation indicates a broad spread of data points.

The dataset includes extreme values, with the maximum and minimum figures showing

substantial differences. For example, the maximum contribution level (CTN) is 3.72 billion, whereas the minimum is just 3,497. Similarly, the TIT has a maximum of 34.4 billion, dwarfing its minimum of 13,827. These extreme values contribute to the high levels of skewness observed in the data. All variables exhibit positive skewness, meaning the distribution is heavily weighted towards lower values, with a long tail extending towards higher values.

The kurtosis values are also notably high, indicating that the data distributions have heavy tails and sharp peaks. This is consistent with the presence of outliers or extreme values that are far from the mean. The Jarque-Bera test confirms that none of the variables follow a normal distribution, as evidenced by the p-values of 0.000000 across the board. This non-normality, coupled with the skewness and kurtosis results, suggests that the data is highly irregular, with certain periods or entities displaying significantly different performance characteristics compared to the rest.

Furthermore, from the summation of each variable, the total contributions (CTN) amount to 6.5 billion, while the net asset value (NET) sums to 821 million. The total performance of pension funds (PBT) across all observations is 238 million, with the aggregate return on investment (TIT) reaching 59.2 billion. These aggregate figures provide a comprehensive view of the overall scale of the data.

Objectives

Null Hypothesis (H0): There is no relationship between the net asset value (NET) and the performance of pension funds (PBT).

Alternative Hypothesis (H1): There is a relationship between the net asset value (NET) and the performance of pension funds (PBT).

Covariance Analysis: Ordinary
Date: 09/01/24 Time: 12:39
Sample: 1 42
Included observations: 42

Correlation	PBT	NET
PBT	1.000000	
NET	0.442358	1.000000

Interpretation

The correlation coefficient between the net asset value (NET) and the performance of pension funds (PBT) is 0.442358. This result indicates a moderate positive correlation between these two variables.The positive correlation coefficient of 0.442358 suggests a moderate relationship between net asset value and the performance of pension funds. This means that, generally, as the net asset value increases, the performance of the pension funds tends to improve. While the correlation is not extremely strong, it indicates a notable relationship.

Based on the observed moderate positive correlation, there is evidence suggesting a relationship between the net asset value and the performance of pension funds. Hence, we reject the null hypothesis (H0). Thus, there is a relationship between the net asset value and the performance of pension funds in Nigeria.

Discussion of findings

The results of this analysis align with existing literature on pension fund performance, investment, and related financial metrics. Firstly, the descriptive statistics of the dataset, which exhibit significant skewness and kurtosis, are consistent with the findings of Abdullahi (2021), who discussed the irregularities and inefficiencies in financial markets, particularly in developing economies like Nigeria. The heavy-tailed distributions observed in the dataset, which suggest the presence of outliers, mirror the challenges outlined by Abdullahi in the efficient market hypothesis as applied to Nigeria's financial markets, the correlation analysis revealed a moderate positive relationship (0.44) between net asset value (NET) and pension fund performance (PBT). This suggests that funds with higher asset values tend to perform better, which is in line with existing literature Gaganis*et al.* (2020). A higher net asset value can reflect better fund management, effective risk management strategies, or higher investor confidence, all of which contribute to improved performance.

The findings also align with Alruwaili's (2024) paper, which emphasized that well-managed pension funds, with substantial assets under management, are better positioned to capitalize on market opportunities and mitigate risks, thereby improving overall performance. However, the moderate nature of the correlation indicates that while asset value plays a role in fund performance, it is not the only factor, as highlighted by Ayuba*et al.* (2020).

These findings further reflect the challenges in the Nigerian pension and insurance sectors, where financial metrics often do not

follow normal distributions and are impacted by broader economic conditions and management practices. As noted by Alruwaili (2024), board effectiveness and audit committee attributes play a significant role in earnings management, a factor that could contribute to the skewed distributions and variability in performance seen in this dataset.

Conclusion

In conclusion, the analysis presented in this paper underscores the complex relationship between net asset value (NAV) and pension fund performance in Nigeria. The findings align with existing literature, highlighting that while a moderate positive correlation (0.44) exists between NAV and pension fund performance (profit before tax), it is not the sole determinant of success. The irregularities and inefficiencies in Nigeria's financial markets, as discussed by Abdullahi (2021), are evident in the heavy-tailed distributions observed in the dataset, suggesting the presence of outliers and broader economic challenges.

The results emphasize that well-managed pension funds, as identified by Alruwaili (2024), are better equipped to leverage market opportunities and mitigate risks, thus enhancing overall performance. However, the moderate correlation indicates that various factors influence pension fund performance, including management practices, board effectiveness, and the external economic environment. This reinforces the notion that comprehensive strategies are necessary for pension fund administrators (PFAs) to improve outcomes.

Recommendations

Based on the findings of this paper, several recommendations can be made to enhance the performance of pension funds in Nigeria:

contribution levels should be reviewed in conjunction with the macroeconomic environment to ensure that fund size alone does not drive expectations of performance. The correlation between net asset value and performance suggests that while larger funds can generate better returns, the emphasis should remain on strong managerial practices and strategic investment decisions.Also, recommends the establishment of effective governance frameworks, including well-functioning boards and audit committees, to enhance decision-making, risk management, and overall fund performance.

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