Bond Investments and Profitability of Retirement Benefits Schemes in Nairobi County, Kenya

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Abstract: *Effective Portfolio management promotes effective investment and planning for pension fund assets, ultimately leading to increased returns and profitability for retirement benefit schemes. These schemes play a pivotal role as the primary sources of income for retirees in Kenya. Therefore, they enhance retirement planning and foster the growth of the country's financial markets. Nevertheless, the returns generated by Kenya's retirement benefit schemes have fallen short of bridging the gap between members' contributions and the benefits. The current study assessed the effect of bond investments on profitability of retirement benefits schemes in Kenya. The study was anchored on modern portfolio theory. The descriptive research design was employed. The study's target population was the 33 retirement benefit schemes within Nairobi County, Census technique was adopted where all the schemes were involved in the research. Data collection was carried out using structured questionnaires, and both descriptive and inferential statistical methods were used for data analysis. Data analysis was aided by Statistical Packages for Social Sciences (SPSS). Descriptive findings established that bond investments within portfolio management minimize risks and maximize returns. As per correlation analysis results, the correlation coefficient was (0.736**; p=0.000), indicating a significant relationship between bond investments and the profitability of retirement benefit schemes. Additionally, regression analysis revealed a coefficient of determination $R^2 = 0.592$, signifying that bond investments accounted for 59.2% of the variation in the profitability of these schemes. The study concluded that diversifying bond investments reduces individual investment exposure, safeguards the portfolio against market downturns and maximizes the returns. The study recommended that retirement benefits schemes conduct comprehensive risk analysis in bond investments and regularly monitor their portfolios while making adjustments to align with their investment goals in order to enhance profitability in the long-term.*

Key words: *Bond Investments, Profitability, Retirement Benefits Schemes*

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1. Introduction

Portfolio management encompasses the selection, allocation, and monitoring of investments, comparing the equities, bonds, real estate, among their assets, with the goal of achieving an optimal balance between risks and returns (Stewart, Piros, & Heisler, 2019). It vitally aligns the investment objectives and risk tolerance through diversifying across various securities. Therefore, effective portfolio management enhance the maximization of returns and minimization of risks, which ensures that the firm's overall investment strategy remains in line with the financial goals. Within pension management, portfolio management is the focal point for effectively managing pension fund assets, aimed at addressing the long-term financial needs (Barro, Consigli, & Varun, 2022). It refines investment strategy with the primary objective of attaining stable returns while prudently handling risk in accordance with the pension fund's specific risk tolerance and the timeframes of its beneficiaries. This incorporates continual monitoring and adjustments to ensure alignment with regulatory requirements and the dynamic financial market landscape. Consequently, portfolio management safeguard the financial stability and viability of the pension scheme for both current and future retirees. According to Wisista and Noveria (2023) pension fund investment takes into account considerations like liquidity and cash flow prerequisites. This highlights the importance of establishing a well-balanced, diversified portfolio capable of enduring market fluctuations over the long-run, ultimately ensuring the retirement security of plan participants. Retirement benefits schemes allocate a portion of their assets to bonds with the aim of generating reliable returns, ensuring capital preservation, and

managing risks (Boyante, 2023). These investments are considered as lower-risk assets that offer steady interest payments and a fixed maturity date, which matches the predictable cash flow requirements of pension payments.

Bond investments provide diversification within the portfolio, contributing to risk mitigation (Winston, 2023). An effective selection of a mix of government, corporate, and other fixed-income securities is vital in balancing income generation with risk tolerance and environmental dynamism. This ultimately aid in stabilizing the retirement benefits schemes by assuring consistent returns and meeting retirees' financial needs. In Kenya, retirement benefits schemes play a crucial role in enhancing the social and economic stability (Mutula & Kagiri, 2018). They establish a vital support system for the elderly, guaranteeing financial security by effectively addressing retirement financial requirements. Furthermore, these schemes cultivate a culture of retirement savings, empowering individuals to assume control over their financial futures (Oyoo, 2020). Additionally, they act as catalysts for long-term investments in the Kenyan economy by directing funds into infrastructure development and capital markets, consequently spurring economic growth.

Despite their significant contribution, retirement benefits schemes in Kenya have struggled to generate sufficient returns to bridge the gap between members' contributions and the benefits payable to them. Notably, returns from fixed income investments in bonds and real estate have been on a downward trend since 2017, with retirement benefits schemes earning 14.5%, 13%, 12.8%, 12.8%, and 9.6% in 2017, 2018, 2019, 2020, and 2021, respectively (RBA, 2021). Portfolio management play a critical role in optimizing returns and mitigating risks, such as the reduction of unfunded liabilities in retirement benefits schemes, a facet that has received limited attention in prior research on pensions management in Kenya. While previous studies like Oyoo (2020) explored the factors affecting the financial performance of pension schemes and Wekhanya (2021) assessed the retirement benefits authority reforms, these studies did not specifically address the management of investment portfolios comprising the bonds. The current study assessed the effect of bond investments on the profitability of retirement benefits schemes in Nairobi County, Kenya.

2. Objective of the Study
The objective of the study was to determine the effect of bond investments on profitability of retirement benefits schemes in Nairobi County, Kenya.

3. Literature Review
Retirement benefits schemes in developing financial markets often struggle to generate sufficient returns, which results in difficulties to meet their liability obligations (Daradkah & Al-Hamdoun, 2021). This inadequacy is primarily due to funding gaps, compelling these schemes to focus on improving the management of pension fund assets and liabilities to bridge the financial deficit. To address the need for higher returns and bridge the gap between assets and liabilities, retirement benefits schemes are turning to long-term government bonds, leading to adjustments in investment strategies (Grujić, 2019). While high-quality treasury bonds provide substantial immunity against duration risks, they may not adequately address other pension liability risks like longevity and inflation. As such, Wang and Li (2018) suggested that diversification in bond investments is essential, underscoring the importance of effective portfolio management in optimizing returns and managing pension investment risks. Corporate bonds play a significant role in pension fund portfolios, offering liquidity advantages as they can be traded in secondary capital markets, allowing for the sale of appreciated bonds and the purchase of discounted corporate bonds with the expectation of future price increases. Additionally, Bretscher, Schmid, Sen, and Sharma (2020) asserted that retirement benefits schemes should be cautious when investing in higher-risk options like junk bonds and ensure that their overall portfolio risk aligns with regulatory and investment objectives.

The modern portfolio theory (MPT), propounded by Harry Markowitz (1952), describes the selection of investments with aim of maximizing total returns within level of risk that is acceptable by the firm. In the context of portfolio management, pension fund managers focus on estimating the expected return from a collection of risky assets, which is calculated as a weighted average of each asset's expected return. Modern Portfolio Theory (MPT) underscores the importance of comprehending the factors influencing portfolio risk and return and how these variables can be strategically manipulated for optimal results, aligning with pension managers' risk and return preferences. MPT serves as a robust theoretical framework for constructing portfolios that closely match these preferences, emphasizing that diversification can enhance returns for a given risk level or offer equivalent returns at a reduced risk level. Given that a portfolio's expected return depends on the asset weights, MPT's principles apply to this study, which revolves around portfolio management, encompassing various investments in bonds within retirement benefits schemes. An analysis has been conducted on empirical studies related to bond investments and profitability. A study by Oyoo (2020) on the factors affecting financial performance of pension schemes in Kenya established that there was a significant relationship between risk management and financial

performance (β= 0.987, p=0.000). The relationship between age and financial performance was a negative and insignificant relationship (β= -0.00058, p=0.912). However, member contribution had a positive and significant relationship with financial performance (β= 0.0209, p=0.000). The results further revealed a positive and significant relationship firm size and financial performance (β= 0.018, p=0.003). Owinyo (2017) examined the determinants of the financial performance of retirement benefit schemes in Kenya. The study findings revealed that age of contributors, leverage of fund, contributions received, fixed income investment, equity investment, offshore investment, fund liquidity does not have an influence on the financial performance of retirement schemes. Kinyua, Muturi, and Simiyu (2022) conducted a study on the investment strategy and financial performance of defined contribution pension funds in Kenya. The study established that a positive association exists between investment strategy and financial performance of defined contribution pension funds in Kenya. Mutula and Kagiri (2018) assessed the determinants influencing pension fund investment performance in Kenya. The research employed descriptive research design. The study findings established a positive and significant relationship between diversification decisions, management competency, investment strategies, regulation compliance and investment performance of pension funds. Figure 1 presents the relationship between bond investments and profitability of retirement benefits schemes.
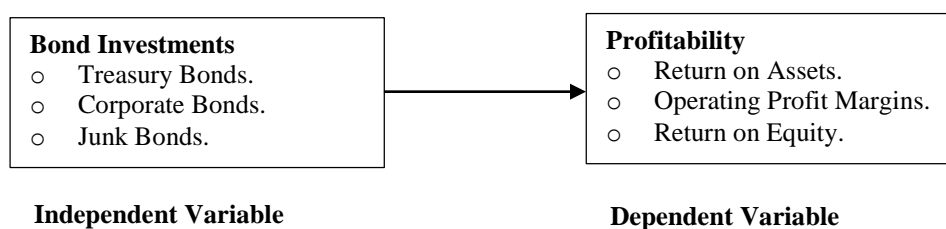
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┌─────────────────────────────┐              ┌─────────────────────────────┐
│ Bond Investments            │              │ Profitability               │
│  o  Treasury Bonds.         │─────────────▶│  o  Return on Assets.       │
│  o  Corporate Bonds.        │              │  o  Operating Profit Margins.│
│  o  Junk Bonds.             │              │  o  Return on Equity.       │
└─────────────────────────────┘              └─────────────────────────────┘
        Independent Variable                          Dependent Variable
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Figure 1: Conceptual Framework

Research gaps were identified from the past studies. For instance, Oyoo (2020) established that pension funds' performance was dependent on risk management. However, the aspect of portfolio management was not well elaborated in connection to management of risks in pension funds. The current study is anchored on portfolio management. The risks associated with investments by retirement benefits scheme have been clearly discussed and included investment risks, longevity risk, and liquidity risks. In particular, the study lays emphasis on management of pension risks through investment in bonds. Another study by Owinyo (2017) established that there was insignificant relationship between the age of contributors, leverage of fund, contributions received, fixed income investment, equity investment, offshore investment, and fund liquidity on financial performance of retirement schemes. This finding provided an opportunity for a study on bond investments and profitability retirement benefit schemes since the results by Owinyo (2017) were insignificant. Additionally, the research findings by Kinyua et al (2022) indicated that long-term investments, medium term investments and short-term investments explained 57.76% of the variations in the return on investment. The current study focused on the bond investment strategies for pension funds including the active, passive, and hybrid investment strategies and their effect on profitability.

4. Research Methodology

This study adopted descriptive research design. Descriptive research design describe the population and the phenomenon of interest accurately and systematically (Mugenda & Mugenda, 2012). The study targeted the retirement benefits schemes in Nairobi County. According to Retirement Benefits Authority (RBA, 2022) there are 33 registered umbrella retirement benefits schemes operating Nairobi County thus the researcher targeted the 33 managers. Managers make investment decisions thus were better positioned to provide information regarding bond investments and profitability of retirement benefits schemes. 33 managers is a small and manageable number thus the researcher employed census technique where all of them will be involved in the study. Data was collected through use of structured questionnaires. The researcher employed descriptive data analysis method. Descriptive analysis incorporated means, percentages, and standard deviations to describe and summarize data points in a constructive way. Furthermore, the researcher employed inferential data analysis methods comprising Pearson's moment correlation coefficient and regression analysis. Correlation established the strength and direction of relationship of the variables. On the other hand, regression analysis determined the relationship by predicting variation in the dependent variable from changes in the independent variables. Analysis done through aid of Statistical Packages for Social Sciences (SPSS). The findings were presented through tables. The following model was applied in regression analysis:

$Y = \beta_0 + \beta_1 X_1 + \varepsilon$
Where;
Y = Profitability
β_0 = Constant
β_1 = Beta coefficient
X_1 = Bond Investments
ε = Error of Estimate

5. Findings and Discussions
This section outlines the descriptive and inferential findings and discussions on the effect of bond investments on profitability of retirement benefits schemes. The researcher received a response rate of 78.8%, with 26 out of the 33 questionnaires distributed being completely filled and returned.

5.1 Descriptive Findings and Discussions
The study sought to establish the effect of bond investments on profitability of retirement benefits schemes. Findings are shown in Tables 1 and 2.

Table 1: Effect of Bond Investments on Profitability of Retirement Benefits Schemes

	N	SA 5	A 4	N 3	D 2	SD 1	Mean	Std. Dev.
Our retirement benefit scheme has intensified investment in bonds for the past 5 years.	26	50%	19.2%	23.1%	7.7%	0%	4.12	1.033
Investment in treasury bonds has significantly minimized our portfolio risks.	26	23.1%	30.8%	19.2%	11.5%	15.4%	3.35	1.384
Bonds offers predictable earnings over the investment period.	26	26.9%	30.8%	19.2%	15.4%	7.7%	3.54	1.272
Our corporate bond investments are spread across a broader range of companies.	26	34.6%	38.5%	23.1%	3.8%	0%	4.04	0.871

According to the results shown in Table 4.4, it is evident that a majority of the respondents (50%) concurred (mean=4.12; std.dev.=1.033) that the retirement benefits schemes had over the period of the past 5 years intensified investment in bonds. Generally, the respondents held divergent opinions with regard to the retirement benefits schemes having invested in treasury bonds and significantly minimizing the portfolio risks (mean = 3.35; std dev = 1.384). However, at least 53.9% of the respondents concurred that investment in treasury bonds helped to minimized portfolio risks. Additionally, the respondents were indifferent (mean=3.54; std.dev.=1.272) that bonds offers predictable earnings over the investment period. On average, it was agreed that corporate bond investments are spread across a broader range of companies (mean = 4.04; std.dev = 0.871). Overall, the findings established that insufficient investment in bonds has adversely affected the retirement benefits schemes in Kenya in terms of low overall returns on investments, which contribute to inadequate profitability.

Table 2: Profitability of Retirement Benefits Schemes

	N	SA 5	A 4	N 3	D 2	SD 1	Mean	Std. Dev.
Our return on assets have increased for the past 5years.	26	42.3%	46.2%	7.7%	3.8%	0%	4.27	0.778
Effective portfolio management is attributable to increased profit margins in our company.	26	38.5%	53.8%	7.7%	0%	0%	4.37	0.618
Our company has generated stable returns on equity for the past five years.	26	42.3%	38.5%	15.4%	3.8%	0%	4.19	0.849
Bond investments affect profitability of retirement benefits schemes.	26	26.9%	53.8%	15.4%	3.8%	0%	4.04	0.774

In tandem with the descriptive results shown in Table 2, it was found out that most (46.2%) of the managers of retirement benefits schemes agreed (mean=4.27; std.dev.=0.778) that their firms' return on assets have increased for the past 5 years. However, the increase in the returns on assets has not been sufficient to adequately meet all

the liability obligations. The respondents were in agreement (mean = 4.37; std.dev.=0.618) with the proposition that effective portfolio management is attributable to increased profit margins in their retirement benefits schemes. The findings showed that 53.8% of the managers agreed (mean=4.04; std.dev. =0.774) that management of bond investments affect profitability of retirement benefits schemes. Retirement benefits are designed to generate returns that can support the payment of retirement benefits to their members over the long term. Effective portfolio management through bond investments contribute to profits of retirement benefits schemes. The inadequate investment and diversification in bonds has partly made these schemes is attributable to the difficulties in generating consistent income to meet the financial needs of retirees.

5.2 Inferential Findings and Discussions
Inferential analysis was conducted to establish relationship between the independent and dependent variable. They included Pearson's correlation coefficient analysis and regression analysis.

5.2.1 Correlation Analysis
Correlation analysis was done to establish the relationship between independent and dependent variable. Table 3 illustrates the correlation analysis results.

Table 3: Correlation between Bond Investments and Profitability

		Profitability
	Pearson Correlation	.736**
Bond Investments	Sig. (2-tailed)	.000
	N	26

**. Correlation is significant at the 0.01 level (2-tailed).

According to the results of correlation analysis shown in Table 3, it was revealed that there existed a positive, strong relationship (r = 0.736**) and statistically significant (p = 0.000) at 1% level of significance between bond investments and profitability of retirement benefits schemes. This meant that increase in bond investments resulted into increase in the profitability of retirement benefits schemes.

5.2.2 Regression Analysis
Regression analysis was conducted to predict profitability of retirement benefits schemes from the variation in bond investments. Results are illustrated in Tables 4, 5 and 6.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.736[a]	.592	.568	.19237

a. Predictors: (Constant), Bond Investments

According to the results in Table 4, the correlation coefficient was R=0.736[a] with coefficient of determination R^2=0.592. This implies that bond investments explained 59.2% of variation in profitability of retirement benefits schemes. The also mean that bond investments affected the profitability of retirement benefits schemes.

Table 5: ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	2.309	4	1.684	11.704	.000[b]
Residual	1.438	21	.072		
Total	3.747	25			

a. Dependent Variable: Profitability
b. Predictors: (Constant), Bond Investments

Analysis of variance (ANOVA) was conducted to determine the overall significance of the regression model. The results shows that the F-value= 11.704, p=0.000 was significant at 95% confidence level. The results means that the model was fit. Therefore, profitability of retirement benefits schemes was affected by bond investments.

Table 6: Regression Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.416	.428		5.645	.007
Bond Investments	.594	.162	.736	3.667	.004

a. Dependent Variable: Profitability

The study applied regression model; $Y = \beta_0 + \beta_1 X_1 + \varepsilon$. The model was interpreted as; $Y = 2.416 + 0.594 X_1 + \varepsilon$. According to the results in Table 6, the beta coefficient for bond investments was $\beta = 0.594$. This meant that profitability of retirement benefits schemes changed by 0.594 unit when bond investments changed by one unit. Overall, the results shows that profitability of retirement benefits schemes was predictable from bond investments. Therefore, it was concluded that bond investments affected profitability of retirement benefits schemes.

6. Conclusion
The study concluded that bond investments offer a fixed rate of return, providing a steady stream of income for retirement benefit schemes. This income stability is vital for fulfilling the financial obligations to retirees and ensures a reliable source of funds for pension payments. However, insufficient investment in bonds has hindered these schemes' ability to benefit from this fixed income source, resulting in lower profitability and making it challenging to meet the retirement income requirements. Additionally, the lack of diversification into bonds has made the portfolios of these schemes less resilient to market fluctuations, leaving them exposed to greater risk and further affecting their profitability.

7. Recommendation
The researcher recommended that retirement benefits schemes should conduct thorough risk analysis in bond investments. They should also monitor the bond portfolio regularly and make adjustments to meet their investment goals.

References
[1]. Barro, D., Consigli, G., & Varun, V. (2022). A Stochastic Programming Model for Dynamic Portfolio Management with Financial Derivatives. *Journal of Banking & Finance, 140*, 106445.
[2]. Boyante, R. A. A. (2023). Moderated Analysis Of Asset Allocation And Financial Performance Of Pension Funds in Kenya (Doctoral Dissertation, JKUAT COHRED).
[3]. Bretscher, L., Schmid, L., Sen, I., & Sharma, V. (2020). Institutional Corporate Bond Pricing. *Swiss Finance Institute Research Paper,* (21-07).
[4]. Daradkah, D., & Al-Hamdoun, N. (2021). Pension Funds, Capital Market Development, and Macroeconomic Variables: Evidence from Jordan. *Journal of Public Affairs, 21*(2), E2215.
[5]. Grujić, M. (2019). The Relationship of Pension Funds with Financial Markets Development. *Journal of Contemporary Economic and Business Issues, 6*(2), 51-68.
[6]. Kinyua, M. L., Muturi, J., & Simiyu, E. (2022). Investment Strategy and Financial Performance of Defined Contribution Pension Funds in Kenya. *Journal of Finance and Accounting, 6*(1).
[7]. KNBS. (2021). Retirement Benefits Schemes Investments Performance Survey Of Year 2021
[8]. Markowitz, H. (1952). Portfolio Selection. *The Journal of Finance, 7* (1) 77-91.
[9]. Mugenda, O. M., & Mugenda, A. G. (2012). Research Methods Dictionary. Nairobi. Kenya Applied Research and Training Services, Kenya.
[10]. Mutula, A. K., & Kagiri, A. (2018). Determinants Influencing Pension Fund Investment Performance in Kenya. *International Journal of Finance, 3*(1), 14-36.
[11]. Owinyo, J. A. (2017). Evaluation of Determinants on the Financial Performance of Retirement Benefit Schemes in Kenya (Doctoral Dissertation, Strathmore University).
[12]. Oyoo, J. O. (2020). Factors Affecting Financial Performance of Pension Schemes in Kenya (Doctoral Dissertation, KCA University).
[13]. Retirement Benefits Authority (RBA, 2021). Retirement Benefits Authority Annual Report of the Year 2021.
[14]. Stewart, S. D., Piros, C. D., & Heisler, J. C. (2019). Portfolio Management: Theory and Practice. John Wiley & Sons
[15]. Wang, P., & Li, Z. (2018). Robust Optimal Investment Strategy for an AAM of DC Pension Plans with Stochastic Interest Rate and Stochastic Volatility. *Insurance: Mathematics and Economics, 80,* 67-83.
[16]. Winston, K. J. (2023). Quantitative Risk and Portfolio Management: Theory and Practice. Cambridge University Press.
[17]. Wisista, R. T., & Noveria, A. (2023). Optimizing Pension Fund Investment Portfolio Using Post-Modern Portfolio Theory (PMPT) Study Case: An Indonesian Institution. *European Journal of Business and Management Research, 8*(5), 55-61.
[18]. Wekhanya, L. A. (2021). Impact of Retirement Benefits Authority Reforms on Financial Performance of Pension Firms in Kenya (Doctoral dissertation, University of Nairobi).