

**INVESTMENT OF THE FUND, FINANCING STRUCTURE AND FINANCIAL
PERFORMANCE OF UMBRELLA AND INDIVIDUAL PENSION SCHEMES IN
KENYA**

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Abstract

A pension scheme is a financial arrangement whereby an employer or individuals save for retirement. Pension schemes create employment and boost economic growth. Pension Schemes assets to GDP (%) in Kenya stood at 13.3 % in 2020 with expected increase in subsequent years. However, return on assets decreased from 2.40% in 2018 to 1.92% in 2022. Retained earnings decreased from Ksh. 404.8 billion in 2017 to 50.5 billion in 2018 then increased to 239 billion in 2020. This paper examines effect of investment of the fund and financing structure on financial performance of umbrella and individual pension schemes in Kenya. Financial performance was measured using return on investment (ROI). The study utilized Modern Portfolio Theory and Pecking Order Theory. The researcher utilized secondary data including yearly reports and publications. The target population consisted of 32 umbrella and 41 individual pension schemes in Kenya. Census was utilized. The study period was 5 years from 2018 to 2022. Panel data analysis was used for inferential analysis. Inferential statistics were performed using regression analysis. Descriptive analysis was utilised including mean and standard deviation. Diagnostic Tests including Linearity, Normality and Multicollinearity Tests were carried out. Explanatory research design was utilized. Ethical considerations were met. The study found that investment of the fund and financing structure had a positive and significant effect on financial performance. The study recommended that schemes should increase diversification of investment portfolios and periodic stress-testing to assess resilience under various scenarios. It also recommended that prudent income distribution and reserve policies should be adopted by schemes. Stakeholders will utilize study findings to establish new strategies for managing pension schemes. The research suggested further studies to be done on other factors that influence financial performance of umbrella and individual pension schemes in Kenya.

Key words: Retirement, Pension Schemes, Return on Investment, Regulations, Financial Performance

INTRODUCTION

Pension schemes boost economic growth at local and international levels. Locally, they are used in homes to invest in children's education (Mart-Ballester, 2020). Internationally, pension schemes have considerable multiplier effects (Walker & Iglesias-Palau, 2019). Therefore, improving financial performance of pension schemes is important in ensuring economic growth and poverty reduction worldwide. However, pension schemes around the world have reported poor performance leading to collapse of some of them. According to

Mazreku, Morina, and Curraj (2020), financial performance involves analysing a range of financial metrics and indicators to gauge the overall health and efficiency of an entity's financial operations. Financial performance can be evaluated from various perspectives, including profitability, liquidity, solvency, and efficiency.

In Lithuania, Liutvinavičius and Sakalauskas (2017) indicated that pension schemes had been experiencing a decrease in financial performance for the period between 2012 and 2016. The main factors contributing to the decreasing financial performance included poor investment strategies, lack of diversification and poor management. Fund characteristics refer to specific attributes in a pension scheme that influence its performance. Sitienei (2019) indicated that fund characteristics in pension schemes in Kenya include age of the funds, expenditure of the funds, density of contributions, idle contributions and size of the fund. The focus of this study will be on fund characteristics of umbrella and individual pension schemes, which include size of the fund, investment of the fund, management of the fund and financing structure.

Pension funds in Nigeria are managed by licensed Pension Fund Administrators (PFAs) who are regulated by the National Pension Commission (PenCom) in Nigeria (Ajibade, Olamide & Oluwatobiloba, 2018). PFAs are responsible for managing and investing the pension funds in accordance with regulatory guidelines. In Kenya, the underwhelming performance of pension plans has been linked to the investment strategy and investment portfolio composition (Nyangeri, 2019).

Statement of the Problem

Pension schemes boost economic growth by creation of employment and boosting of Growth Domestic Product, (GDP). Pension fund assets to GDP (%) in Kenya was reported at 13.3 % in 2020 with expected increase in the coming years (Retirement Benefits Authority, 2021). In addition, pension Schemes in Kenya hold a huge lot of assets on behalf of beneficiaries (Odira, Miroga & Otinga, 2020). However, funds paid out to the beneficiaries are inadequate in proportion to the funds available for investment, which means there is less accumulation of funds. For instance, the retirement benefits assets under management increased by 4.68 percent from Kshs.1,478.18 billion in June 2021 to Kshs. 1,547.43 billion in December 2021, but the funds paid out to the beneficiaries decreased by 12%.

According to Retirement Benefits Authority (2021), the Return on Assets in pension schemes in Kenya decreased from 2.69% in 2017 to 2.40% in 2018. Further, the Return on Assets decreased from 2.60% in 2019 to 1.86% in 2020, increased to 2.2% in 2021, but decreased to 1.92% in 2022. The Return on Investment similarly decreased from 11% in 2017 to 4% in 2018, before increasing to 11% in 2019 and decreasing to 5% in 2020, 2% in 2021 and 1.9% in 2022 (Retirement Benefits Authority, 2021). The total assets in pension schemes in Kenya increased from Ksh. 125.913 billion in 2018 to Ksh. 191.709 billion in 2019, Ksh. 209.758 billion in 2020 and Ksh. 240.362 billion in 2021.

As the pension scheme assets in the industry consistently increase, there has been a general concern about the fluctuations in the returns on these assets by stakeholders especially savers who have other investment alternatives to their disposal such as unit trusts that they may opt to invest in instead of pension schemes. The study sought to examine the effect of investment of the fund and financing structure on financial performance of umbrella and individual pension schemes in Kenya.

Objectives of the Study

- i. To examine the effect of investment of the fund on financial performance of umbrella and individual pension schemes in Kenya.
- ii. To establish the effect of financing structure on financial performance of umbrella and individual pension schemes in Kenya.

Theoretical Review

Modern Portfolio Theory

Markowitz (1952) was the founder of the theory. Risk return trade-off, asset return correlations, portfolio selection, and investment optimization form the core of MPT. The primary goal of the theory is to offer the best portfolio combination that optimizes returns for a given level of risk (Markowitz, 1959). MPT is built on a number of presumptions that centre on human behaviour and infer institutional behaviour. That investors are rational and risk averse when choosing their maximum expected utility, which will result in larger returns with lower overall risk. Investors prefer portfolios with high projected returns to those with low expected returns and they are merely price takers who have little control over prices of securities. Investors also know the expected return of their portfolios.

MPT assumes that diversification can eliminate all unsystematic risk yet this does not hold during times of extreme market conditions. MPT also assumes that all investors are risk averse and are completely rational. However, many investors enjoy taking risks and at times take unwise risks or trade based on emotions.

The study used the Modern Portfolio Theory to explain the effect of investment of the fund on financial performance of umbrella and individual pension schemes. If no other asset or portfolio of assets provides a greater expected return with the same (or lower) risk or a lower risk with the same (or higher) expected return, then an asset or portfolio of assets is deemed to be efficient (Lee & Eid, 2018). However, pension schemes diversify their risks by using different types of investments. In Kenya, pension schemes invest in immovable properties, guaranteed funds, listed corporate bonds, government securities, quoted equities, fixed deposits, offshore investments and unquoted equities. Only when the risk level of the assets is taken into consideration can portfolio construction for the plan assets be successful. The study considers a variety of interest-bearing assets, such as bonds and stocks with a range of returns and, as a result, comprise a portfolio.

Pecking Order Theory

The Pecking Order Theory, which has to do with a firm's capital structure, was created by Myers and Majluf in 1984. The theory explains how companies choose their sources of financing, particularly in the context of raising capital for investments, expansion, or other financial needs. This theory suggests that companies have a preferred order or hierarchy when it comes to selecting financing options. First, they use internal financing, which includes retained earnings and cash from operations. If internal funds are insufficient, they turn to debt financing like loans or bonds, as it's considered a better choice than diluting ownership with equity. Equity financing, such as issuing new shares, is the least preferred option and is used when no other alternatives are available. In the context of Pecking Order Theory, information asymmetry often involves differences in knowledge between a company's management (insiders) and external investors (outsiders) (Myers & Majluf, 1984). In a criticism of Pecking Order Theory, Vasiliou, Eriotis and Daskalakis (2019) observed that the theory is old and has not been updated with newer financial methods of fundraising. Additionally, according to Martinez, Scherger, and Guercio (2019), the theory does not account for the impact of taxes, the price of creating new securities, agency costs, or the financial distress of investment possibilities. Additionally, it ignores the issues brought on by financial managers' choices to build up enough financial slack to shield them from market discipline.

Pecking order theory was used to explain the influence of financing structure on financial performance of umbrella and individual pension schemes. The theory underscores the importance of minimizing transaction costs, managing financial risks, and avoiding signalling negative information to external stakeholders. In practice, pension schemes often rely on a combination of internal funding, debt financing, and, to a lesser extent, equity financing to

meet their financial obligations and manage their financial performance (Vasiliou, Eriotis & Daskalakis, 2019). Pension schemes can generate internal financing through various sources. For example, contributions from employees and employers, along with investment income, can be seen as a form of "retained earnings." Pension schemes often prioritize these internal sources of financing because they do not involve transaction costs and are generally considered stable. According to Martinez, Scherger, and Guercio (2019), debt financing in pension schemes is often a preferred option as it helps maintain financial stability and does not dilute ownership (pension fund assets) as issuing equity would in a corporate context. In the context of pension schemes, equity financing could relate to asset sales or, to a lesser extent, additional investments by stakeholders. Equity financing might be considered only if internal funds and debt financing options are insufficient to cover pension obligations.

Empirical Literature Review

Investment of the Fund and Financial performance

The factors affecting the financial performance of individual pension plans in Kenya were evaluated by Kimeli and Wepukhulu (2018). All 34 of Kenya's registered individual pension systems served as the study's target group. Closed-ended questionnaires were the primary research tools used in the study, which utilised primary data. According to the study, each of the four variables significantly affected financial performance. According to the study, fund ethics, firm characteristics, and the least stringent RBA requirements had the least impact on the financial success of individual retirement benefit plans and had the biggest impact on investment methods. According to the study's conclusions, Kenya's individual retirement pension plans had not been performing at their best. The study did not show the effect of safety of the investment and types of investment. In addition, the study used primary data which was collected by use of questionnaires. This study used secondary data from all the 73 pension schemes in Kenya.

Financing Structure and Financial performance

Ichingwa and Mbithi (2017) conducted a study to determine how Kenyan pension schemes' financial performance was impacted by total contributions. The Retirement Benefits Authority report states that by the end of 2016, there were 818 registered occupational pension schemes in Kenya, making them the study's target population. The sample size of 261 registered occupational retirement benefit programs was determined by random sampling. The study made use of secondary data that was analyzed with both descriptive and inferential statistics. The results of the study proved that total contribution has a favorable and considerable impact on the financial health of pension plans. However, the study focused on registered occupational pension schemes and stratified random sampling method. However, this study made use of a census approach and hence look at 73 registered umbrella and individual pension schemes in Kenya.

Conceptual Framework

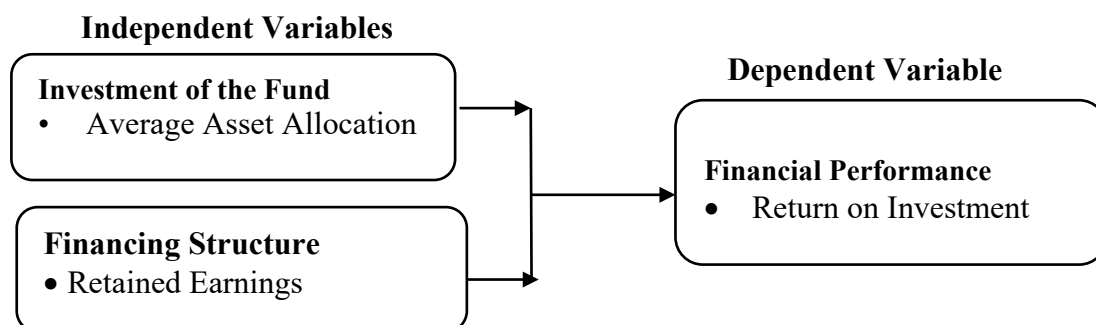


Figure 1: Conceptual Framework

RESEARCH METHODOLOGY

An explanatory research design was used in this study. It involved determining the scope and type of cause-and-effect interactions. The target population of the study included 32 umbrella pension schemes and 41 individual pension schemes registered by the Retirement Benefits Authority in Kenya. The study used census approach since the target population is small. This research utilized secondary panel data, which covered a period of 5 years from 2018 to 2022. Secondary data was collected from Retirements Benefits Authority as well as individual and umbrella pension schemes which publish their financial statements in each financial year.

Data Analysis

Data from 60 umbrella and individual pension schemes was available for the period between 2018 and 2022. Panel data analysis was used to analyze the data obtained through a data collection checklist. Both inferential and descriptive statistics were used in the study's data analysis. STATA version 14 was used for all statistical analysis. Frequency distributions, percentages, means, variances, and standard deviation are all included in descriptive statistics. On the other hand, regression analysis was used to perform inferential statistics. The results of the study were presented in tables and figures such as line graphs.

RESULTS

Descriptive Statistics

A summary of descriptive statistics is shown below in Table 1.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
FP	300	.9419893	.7638226	-2.5407	4.4462
IF	300	.0977833	.1200271	-.11	.983
FS	300	.1375623	.1512211	.000137	.963505

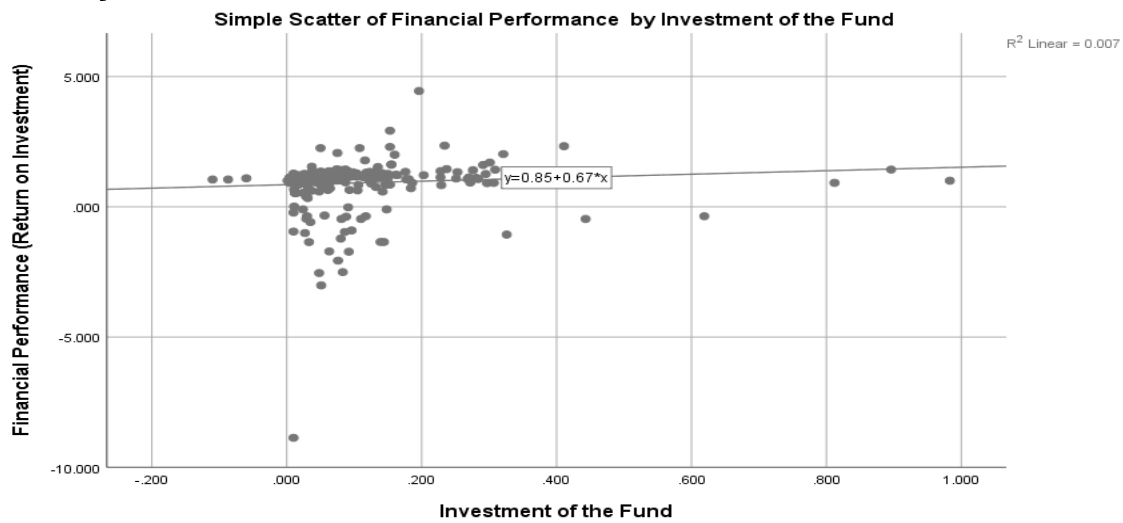
Source: Research Data (2024)

From the results, as shown in Table 1, the average Financial Performance (FP), measured in terms of return on investment (ROI) across the 300 observations was 0.9419893. The ROI values had a moderate level of variability around the mean, with a standard deviation of approximately 0.7638226. The ROI values range from -2.5407 to 4.4462, indicating a wide range of performance outcomes.

The NAV values range from 0.5643 to 0.9973. The average asset allocation measured in terms of Investment of the Fund (IF) was approximately 0.0977833. The asset allocation values had a moderate level of variability around the mean, with a standard deviation of approximately 0.1200271. The asset allocation values range from -0.11 to 0.983.

The average retained earnings as a measure of Financing Structure (FS) is approximately 0.1375623. The retained earnings values had a moderate level of variability around the mean, with a standard deviation of approximately 0.1512211. The Retained Earnings values range from 0.000137 to 0.963505.

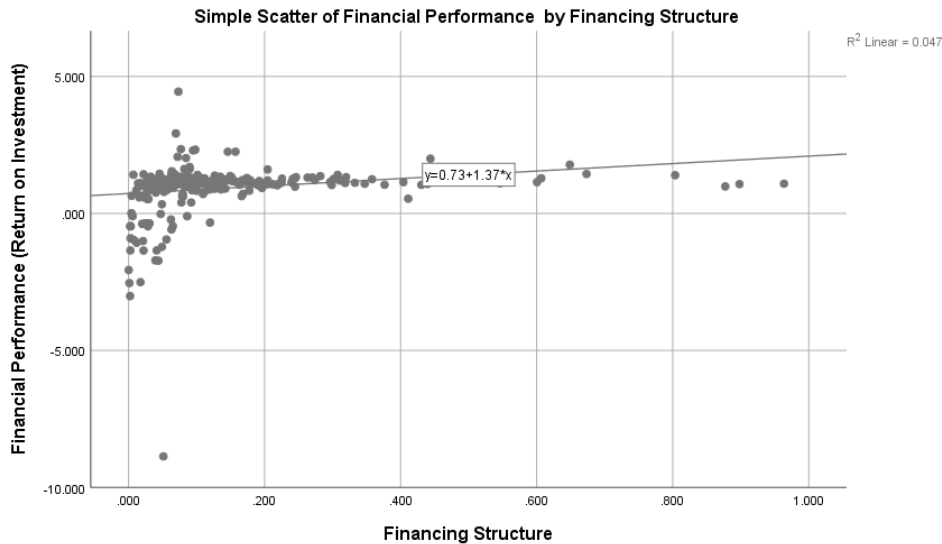
Diagnostic Tests Linearity Test



Source: Research Data (2024)

Figure 1: Investment of the Fund and Financial Performance

As shown in Figure 2, investment of the fund had a positive linear relationship financial performance of umbrella and individual pension schemes in Kenya. The results indicated that the investment of the fund could explain 0.7% of the financial performance of umbrella and individual pension schemes in Kenya. This implied that an increase in the investment of the fund would lead to an increase in the financial performance of umbrella and individual pension schemes in Kenya.



Source: Research Data (2024)

Figure 3: Financing Structure and Financial Performance

As shown in Figure 3, financing structure had a positive linear relationship to financial performance of umbrella and individual pension schemes in Kenya. The results indicated that financing structure could explain 4.7% of the financial performance of umbrella and individual pension schemes in Kenya. This implied that an increase in the size of the fund would lead to an increase in the financial performance of umbrella and individual pension schemes in Kenya.

Normality Test

The null hypothesis of the Shapiro-Wilk test is that the data follows a normal distribution. In other words, it assumes that the data is normally distributed. The results were as shown in Table 2.

Table 2: Shapiro-Wilk Test

	Shapiro-Wilk		
	Statistic	df	Sig.
Financial Performance	.962	300	.127
Investment of the Fund	.961	300	.124
Financing Structure	.962	300	.127

a. Lilliefors Significance Correction

Source: Research Data (2024)

As shown in Table 2, the variables of the study, financial performance, investment of the fund and financing structure, had p-values greater than 0.05 (typically the threshold for statistical significance). Therefore, there was insufficient evidence to reject the null hypothesis of normality for these variables at the conventional significance level of 0.05. As such, based on the Shapiro-Wilk test, there was no strong evidence to suggest that any of the variables deviated significantly from a normal distribution.

Multicollinearity Test

Multicollinearity was tested using Variance Inflation Factor (VIF). VIF helps quantify the extent to which the variance of an estimated regression coefficient is increased due to multicollinearity. The results were as shown in Table 3.

Table 1: Variance Inflation Factor

Variable	VIF	1/VIF
FS	1.06	0.943649
IF	1.04	0.963576
Mean VIF	1.05	

Source: Research Data (2024)

As shown in Table 3, all the independent variables (investment of the fund and financing structure) had VIF values close to 1 (specifically 1.06 or 1.04), suggesting minimal multicollinearity among the independent variables. The mean VIF across all variables was 1.05, corroborating the notion that multicollinearity was not a significant concern in the regression analysis. The estimated regression coefficients for investment of the fund and financing structure were likely reliable and interpretable without significant concerns regarding multicollinearity-induced bias or instability.

Heteroscedasticity Test

Breusch –Pagan/Cook- Weisberg test was used to test heteroscedasticity. The null hypothesis of the Breusch-Pagan test is that there is homoscedasticity, meaning that the variance of the residuals is constant across all values of the independent variables. The results were as presented in Table 4.

Table 2: Breusch-Pagan Test for Heteroscedasticity

Breusch-Pagan Test for Heteroscedasticity	
H ₀ : Constant Variance	
Variables: Fitted values with Financial Performance	
Chi2(1)	= 0.077
Prob>Chi2	= 0.08783

Source: Research Data (2024)

As shown in Table 4, the p-value of 0.08783 was greater than the significance level of 0.05, which implied that there was homoscedasticity in the dataset. This was a favourable result for linear regression analysis because it meant that one of the assumptions of classical linear

regression (homoscedasticity) was met, hence proceeding with the analysis without the concern of heteroscedasticity affecting the validity of the results. Homoscedasticity indicates that the variability of the residuals is consistent and does not depend on the values of the independent variables.

Hausman Test

The Hausman Test helps determine whether the coefficients estimated from a model that uses consistent estimators (fixed effects or random effects) differ significantly from those estimated from a model that uses efficient but potentially inconsistent estimators. The results were as shown in Table 5.

Table 3: Hausman Test

Coefficients				
	(b) fixed	(B) random	(b-B) Difference	Sqrt(diag(V-b-v_B)) S.E.
IF	3.841103	1.36087	2.480233	.3377902
FS	.7212131	1.032957	-.3117439	.4899548
b=consistent under H ₀ and H _a ; obtained from xtreg				
B=inconsistent under H _a ; efficient under H ₀ ; obtained from xtreg				
Test H ₀ :	Difference in coefficients not systematic			
	Chi2(4)	= (b-B) ' [(V-b-v_B) ^ (-1)] (b-B)		
		= 69.37		
	Prob>chi2	= 0.0000		

Source: Research Data (2024)

As illustrated in Table 5, Hausman specification test p value (0.0000) was less than the alpha value of 0.05 (at 95% confidence interval). This implied that the null hypothesis failed to be rejected implying that the study needed to use random effects model.

Panel Regression Analysis

The study adopted a panel regression model in assessing the effect of investment of the fund and financing structure on the financial performance of umbrella and individual pension schemes in Kenya. The regression model was as follows;

$$FP_{it} = \beta_0 + \beta_2 IF_{2it} + \beta_4 FS_{4it} + \varepsilon_{it}$$

Where: FP_{it} is a dependent study variable (Financial Performance); B_0 symbolizes Y intercept; β_1 - β_4 are coefficients of determination; SF symbolizes size of the Fund; IF symbolizes investment of the fund; FS symbolizes financing structure; ε = error term; t subscript symbolizes time, and i subscript symbolizes number of pension schemes.

Table 4: Regression Results

Fixed-effects (within) regression		Number of obs	=	300	
Group variable: PS		Number of groups	=	60	
R-sq: within	=	0.3947	Obs per group: min	= 5	
between	=	0.3615	avg	= 5	
overall	=	0.4549	max	= 5	
		F(2,236)	=	118.67	
corr(u_i, Xb)	=	0.8712	Prob > F	0.000	
FP	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]
IF	3.84110	0.578723	6.64	0.000	2.70098 4.981225
FS	1.72121	0.632236	2.72	0.031	1.05243 2.966760
_cons	-0.42404	0.506268	-0.84	0.403	-1.42142 0.573341
sigma_u	0.76454304				
sigma_e	0.76312839				
rho	.50092601 (fraction of variance due to u_i)				
F test that all u_i=0:	F(59, 236) =	2.96	Prob > F = 0.000		

Source: Research Data (2024)

The regression equation was as follows;

$$FP_{it} = -0.42404 + 3.84110IF_{2it} + 1.72121FS_{4it} + \varepsilon_{it}$$

The R-squared (R^2) value, also known as the coefficient of determination, is a statistical measure that represents the proportion of the variance in the dependent variable (DV) that is explained by the independent variables (IVs) in a regression model. As shown in Table 6 above, R-squared within the pension schemes was 0.3947, which meant that approximately 39.47% of the variance in financial performance was explained by the independent variables in the model. R-squared between (R^2 between) = 0.3615: This suggested that the independent variables explained 36.15% of the variability in financial performance between different groups. Overall R-squared (R^2 overall) = 0.4549: This represented the combined explanatory power of the independent variables across all observations. The F-statistic tested whether at least one of the independent variables had a non-zero coefficient. With a large F-statistic of 118.67 and a very small associated p-value ($p < 0.000$), it was concluded that the overall model was statistically significant.

The findings showed that investment of the fund, measured in terms of average asset allocation, had a positive and significant effect on financial performance of umbrella and individual pension schemes in Kenya ($\beta_2=3.8411$, $p\text{-value}=0.000$). For every one-unit increase in investment of the fund, Financial Performance (FP) was estimated to increase by approximately 3.8411 units. This coefficient was highly statistically significant ($p < 0.001$), indicating a strong positive relationship between investment of the fund and financial performance.

In addition, the results showed that financing structure, measured in terms of retained earnings, had a positive and significant effect on financial performance of umbrella and individual pension schemes in Kenya ($\beta_4=1.72121$, $p\text{-value}=0.031$). The coefficient for Financing Structure was statistically significant at the 0.05 level ($p < 0.05$), indicating that Financing Structure had a significant effect on financial performance.

Conclusions and Recommendations

Conclusions

The study concluded that investment of the fund and financing structure had a positive and significant effect on financial performance of umbrella and individual pension schemes in Kenya. The study findings indicated that umbrella and individual pension schemes that adopt a strategic investment approach to asset allocation, carefully balancing risk and return objectives, tend to outperform those with less structured or ad-hoc investment strategies. As per the study findings, umbrella and individual pension schemes that effectively utilize retained earnings were better positioned to generate higher returns for their members.

Recommendations

In addition, the study recommends that umbrella and individual pension schemes should adhere to the regulatory requirement to review their asset allocation strategies regularly to ensure they align with their long-term investment objectives, risk tolerance, return benchmarks and market conditions. This may involve rebalancing the portfolios periodically to maintain the desired asset mix and adjusting asset allocations based on changes in economic outlook, market trends, and regulatory developments. This will lead to improved investment returns that will push up financial performance. Also, Trustees of umbrella and individual pension schemes should prioritize efficient management practices aimed at reducing expense ratios. Promoting transparency and accountability in fund management processes is also essential to build trust among investors and stakeholders.

The study also recommends that umbrella and individual pension schemes should increase research and analysis to identify emerging high-performing investment opportunities that will lead to better investment returns hence increased financial performance. The study therefore recommends that pension fund managers and Trustees should prioritize the adoption of

prudent income distribution and reserve policies that strike a balance between distributing income to scheme members and retaining earnings for reinvestment to increase financial performance of umbrella and individual pension schemes.

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