

Passive Investment Strategy and Financial Sustainability Of Voluntary Private Pension Schemes in Nairobi County, Kenya

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ABSTRACT: Financial sustainability is crucial for voluntary private pension schemes as it ensures long-term solvency, adequate benefit payments, and resilience against economic shocks. In recent years, the financial sustainability of voluntary private pension schemes in Nairobi County, Kenya, has been a subject of concern, as evidenced by low funded ratios, concentration in low-yield assets, and replacement rates falling short of international benchmarks therefore the study sought to establish the influence of passive investment strategy on financial sustainability of voluntary private pension schemes in Nairobi County, Kenya. The study was anchored on the Efficient Market Hypothesis and Modern Portfolio Theory. A descriptive research design was adopted, targeting a population of 110 employees comprising branch managers, finance officers, pension officers, business development managers, and operations officers drawn from the 22 voluntary private pension schemes operating in Nairobi County. A census approach was used. A structured questionnaire employing a five-point Likert scale was used to collect primary data, and a pilot test involving 11 respondents was conducted in pension schemes within Kiambu County. Content, construct, and criterion validity were established, while reliability was assessed using Cronbach's Alpha. Data were analysed using descriptive statistics (frequencies, means, and standard deviations) and inferential statistics, comprising Pearson correlation and multiple regression analysis, with the aid of the Statistical Package for Social Sciences (SPSS). The findings revealed that respondents generally agreed that passive investment initiatives, particularly index-based allocation, lower management fees, and controlled risk exposure, positively influenced financial sustainability, with an overall mean of 4.240 and a standard deviation of 0.803. The study established a strong, positive, and statistically significant correlation between passive investment strategy and financial sustainability of voluntary private pension schemes ($r = 0.641$, $p = 0.000$), and further established that passive investment strategy had a positive and statistically significant effect on financial sustainability ($\beta = 0.323$, $p = 0.003$), leading to the rejection of the null hypothesis. The study concluded that passive investment strategy, through index tracking, cost efficiency, and controlled risk exposure, is a critical driver of financial sustainability among voluntary private pension schemes in Nairobi County, Kenya. The study recommends that the Retirement Benefits Authority and pension scheme trustees prioritize structured passive investment frameworks, with particular attention to expanding index-based vehicles and reducing management costs, in order to accelerate financial sustainability.

Key Words: *Passive Investment Strategy, Financial Sustainability*

I. Background of the Study

Passive investment strategy refers to an investment approach in which institutional investors construct and maintain diversified portfolios designed to replicate the performance of a selected market index, benchmark, asset class, or predetermined investment allocation rather than attempting to outperform the market through frequent trading and active security selection (Bodie et al., 2021). The strategy is characterized by long-term portfolio holding, broad diversification, low portfolio turnover, systematic asset allocation, benchmark tracking, and relatively limited reliance on frequent investment decisions by fund managers (CFA Institute, 2022). In pension schemes, passive investment may involve investing contributions in broad market indices, exchange-traded funds, index-tracking portfolios, government securities, collective investment schemes, or other diversified assets according to predetermined investment mandates (Malkiel, 2020).

Passive investment strategy is particularly relevant to pension funds because pension schemes have long-term investment horizons and are required to preserve members' retirement savings while generating adequate returns over extended periods (Sharpe, 2020). Unlike active investment, which depends heavily on the ability of fund managers to identify mispriced securities and consistently outperform market benchmarks, passive investment emphasizes market-wide exposure and disciplined portfolio management (CFA Institute, 2022). The strategy can therefore contribute to lower management fees, reduced portfolio turnover, greater diversification, investment discipline, and improved transparency in investment decision-making (Markowitz, 2021).

Globally, passive investment has become increasingly important in institutional asset management as pension funds and other long-term investors seek cost-efficient and diversified approaches to managing large pools of retirement assets (CFA Institute, 2022). Pension funds are among the largest institutional investors in global capital markets, with OECD data indicating that pension providers managed approximately USD 63 trillion by the end of 2024 (OECD, 2025). In developed economies, pension schemes have increasingly adopted passive investment strategies to obtain broad market exposure while minimizing investment management and transaction costs (CFA Institute, 2022; OECD, 2023). In the United States, passive investment among pension schemes is particularly associated with the extensive use of index funds and benchmark-tracking investment portfolios. Pension schemes use these investment vehicles to obtain exposure to broad equity and bond markets without requiring fund managers to continuously select individual securities (CFA Institute, 2022). The approach is based on maintaining portfolios that closely replicate the composition and performance of selected market indices. This enables pension schemes to reduce active management expenses, limit unnecessary portfolio turnover and maintain long-term exposure to capital-market growth.

In Europe, pension schemes have increasingly integrated passive investment into their strategic asset allocation as part of efforts to achieve diversified and cost-efficient long-term portfolios (OECD, 2024). Passive investment strategies among European pension schemes commonly involve investing in index funds, exchange-traded funds and other benchmark-oriented portfolios covering domestic, regional and global financial markets. Through these approaches, pension schemes can obtain diversified exposure across equities, bonds and other asset classes while minimizing frequent portfolio adjustments. OECD (2024) indicates that pension funds in developed markets increasingly consider investment costs, diversification and long-term risk-adjusted returns when determining their asset allocation strategies.

In South Africa, pension schemes have increasingly emphasized long-term and diversified investment approaches, creating opportunities for the application of passive investment strategies within retirement portfolios (African Development Bank, 2023). Passive investment among South African pension schemes involves maintaining diversified portfolios designed to track broad market benchmarks while reducing excessive trading and portfolio management costs. Pension funds can obtain passive exposure to listed equities, fixed-income securities and other permissible investment classes through index-tracking funds and collective investment vehicles (African Development Bank, 2023). The Financial Sector Conduct Authority has continued to strengthen investment governance and responsible investment requirements applicable to retirement funds, thereby emphasizing disciplined and transparent investment decision-making (Financial Sector Conduct Authority, 2023).

In Ghana, pension schemes have increasingly focused on diversified and prudent investment strategies in managing retirement assets, providing a basis for the application of passive investment approaches (National Pensions Regulatory Authority [NPRA], 2023). Passive investment among Ghanaian pension schemes can involve investing in broad-based market portfolios, index-oriented investment vehicles and other diversified instruments that allow schemes to obtain market-based returns without frequent security selection and trading. The National Pensions Regulatory Authority has strengthened oversight of pension fund investment and encouraged trustees and managers to adopt investment strategies consistent with members' long-term retirement objectives (NPRA, 2023). Passive investment is consistent with these objectives because it emphasizes long-term portfolio holding, predetermined asset allocation, diversification and cost control. Through passive investment, Ghanaian pension schemes can reduce unnecessary portfolio turnover and management costs while maintaining exposure to different segments of the financial market.

In Kenya, voluntary private pension schemes form an important component of the country's retirement benefits system by providing individuals with additional opportunities to accumulate retirement savings beyond mandatory pension arrangements. The National Retirement Benefits Policy recognizes voluntary private pensions as an important component of Kenya's retirement benefits architecture and emphasizes the need to expand pension coverage and strengthen retirement income security (National Treasury, 2024). The Retirement Benefits Authority regulates retirement benefits schemes and provides investment guidelines intended to promote safety of retirement savings, investment returns, diversification of investment risks, and the ability of schemes to meet benefit obligations (RBA, 2024). Each scheme is also

required to operate within an Investment Policy Statement that guides its asset allocation and investment decisions (RBA, 2024).

The Kenyan pension industry has experienced substantial growth in recent years, increasing the importance of sound investment strategies for the sustainability of retirement savings. According to the RBA, pension assets increased to approximately KSh. 2.255 trillion by December 2024, reflecting significant growth in the value of retirement savings managed by pension schemes (RBA, 2025). The growth was supported by investment income and member contributions. RBA (2025) further reported that approximately 92% of pension assets were concentrated in four major asset classes, namely government securities, guaranteed funds, quoted equities and immovable property. This concentration in traditional asset classes highlights the importance of appropriate asset allocation and diversification in ensuring that pension schemes achieve sustainable returns while managing investment risks.

The Kenyan pension industry has continued to expand beyond the 2024 position. The RBA (2025) reported that pension assets reached approximately KSh. 2.81 trillion by December 2025, representing a 24.57% increase from December 2024. More recently, pension assets surpassed the KSh. 3 trillion mark, reaching approximately KSh. 3.167 trillion by June 2026, representing a 25.13% year-on-year increase (RBA, 2026). The increase demonstrates the growing financial significance of pension schemes in Kenya and reinforces the importance of investment strategies capable of preserving and growing retirement assets over extended periods. The continued growth of pension assets also means that investment management decisions have increasingly important implications for the financial sustainability of retirement schemes and adequacy of members' future benefits. (RBA, 2024).

Financial sustainability of voluntary private pension schemes refers to the capacity of the schemes to continuously accumulate and preserve sufficient assets to meet members' retirement obligations while maintaining adequate investment returns, controlling operational costs, managing risks, and sustaining adequate liquidity over the long term (OECD, 2024). Financial sustainability can therefore be reflected through indicators such as growth in pension assets, investment returns, adequacy of accumulated funds, liquidity position, cost efficiency, and the ability to meet benefit obligations when they fall due (RBA, 2024). A financially sustainable voluntary pension scheme should be able to withstand adverse market conditions while continuing to protect members' accumulated savings and generate sufficient returns to support retirement income. OECD (2024) emphasizes that pension systems require appropriate investment strategies and risk management frameworks to maintain adequate retirement outcomes under changing economic and financial conditions (Ben-David et al., 2023)

.Financial sustainability of voluntary private pension schemes can be assessed through several indicators, including investment returns, asset growth, and contribution stability, which collectively reflect the schemes' capacity to generate resources, preserve and grow members' retirement savings, and maintain a reliable inflow of funds over time (RBA, 2024). Investment returns refer to the income and capital gains generated from pension scheme investments and are an important indicator of the effectiveness of investment decisions in increasing the value of members' retirement savings. Consistently positive and competitive investment returns enable pension schemes to accumulate adequate resources and improve their capacity to meet future benefit obligations (OECD, 2023). Asset growth refers to the increase in the total value of pension scheme assets over time resulting from member contributions, investment income, capital appreciation, and other income sources. Sustained growth in pension assets indicates the ability of a scheme to expand its financial resource base and strengthen its capacity to meet both current and future retirement obligations (RBA, 2025; OECD, 2024).

Contribution stability refers to the consistency and predictability of contributions received from members and sponsoring employers over time (RBA, 2024). Stable contribution inflows provide pension schemes with a reliable source of funds for investment and help maintain the schemes' capacity to accumulate retirement assets and meet members' benefit obligations (National Treasury, 2024). Therefore, investment returns, asset growth, and contribution stability provide complementary measures of financial sustainability because they capture the scheme's ability to generate investment income, expand its asset base, and maintain consistent financial inflows necessary for long-term retirement security.

II. Statement of the Problem

Financial sustainability is critical for voluntary private pension schemes as it ensures long-term solvency, the capacity to meet benefit obligations, and resilience in a dynamic financial environment. Despite its importance, financial sustainability remains one of the main issues affecting schemes in Kenya, with notable evidence from the Retirement Benefits Authority's industry reports highlighting concentration of over 48.5% of assets in low-yield government securities, segregated scheme returns averaging 7.3% in recent quarters falling short of longevity and inflation benchmarks, liquidity constraints evidenced by unremitted contributions, and a gross income replacement rate of approximately 34.3% below the International Labour Organization's recommended 40% (RBA, 2025; OECD, 2022). Existing studies present conceptual,

contextual, and methodological gaps in this regard. Hughes and Steinberg (2021) examined passive investment strategies in relation to mutual-fund performance in the United States rather than financial sustainability of Kenyan pension schemes. Banda (2020) and Mache and Mutiso (2020) focused on passive strategies in Ugandan or single Kenyan schemes without linking passive investment comprehensively to financial sustainability across the broader voluntary private pension sector in Nairobi County. The current study therefore sought to fill this gap by establishing the influence of passive investment strategy on financial sustainability of voluntary private pension schemes in Nairobi County, Kenya.

III. Theoretical Framework

The study was anchored on the Risk and Return Tradeoff Theory, which explains the fundamental relationship between the level of risk undertaken by an investor and the expected return from an investment. The theory is grounded in the principle that investors generally require higher expected returns as compensation for accepting higher levels of investment risk (Bodie et al., 2021). The theory emphasizes that investment decisions involve a tradeoff between risk and return, whereby investments offering potentially higher returns are generally associated with greater uncertainty and the possibility of financial loss. Conversely, investments characterized by relatively lower risk tend to generate comparatively lower expected returns (CFA Institute, 2022).

The Risk and Return Tradeoff Theory is useful in explaining investment decision-making because it recognizes that investors cannot consider returns independently of the risks associated with achieving those returns. Modern portfolio theory further demonstrates that investors can improve the risk-return characteristics of their portfolios through diversification across different securities and asset classes (Bodie et al., 2021). Diversification reduces the impact of security-specific risk while allowing investors to maintain exposure to potentially profitable investment opportunities. CFA Institute (2022) notes that portfolio diversification, appropriate asset allocation and disciplined investment strategies are important mechanisms through which institutional investors manage investment risk while pursuing long-term returns. The theory is therefore particularly relevant to institutional investors such as pension schemes, which have long-term investment horizons and must balance the preservation of members' retirement savings with the need to generate sufficient investment returns.

The Risk and Return Tradeoff Theory can be applied to passive investment strategy among voluntary private pension schemes because passive investment requires pension schemes to balance the expected returns from broad market exposure against the investment risks associated with financial-market fluctuations. Passive investment involves constructing portfolios designed to replicate the performance of selected market benchmarks rather than relying on frequent security selection and trading to outperform the market. Through index tracking, portfolio diversification, long-term investment holding and predetermined asset allocation, pension schemes can obtain broad exposure to financial markets while controlling portfolio turnover and investment management costs

In the Kenyan context, the theory is particularly applicable because voluntary private pension schemes operate within investment regulations that require prudent management and diversification of members' retirement savings. The Retirement Benefits Authority (RBA, 2024) provides investment guidelines that require pension schemes to consider the safety of retirement savings, investment returns, diversification of investment risks and the ability of schemes to meet their benefit obligations. Passive investment strategies can be aligned with these requirements through predetermined asset allocation, diversification across permissible investment categories, benchmark tracking and long-term investment holding. The Risk and Return Tradeoff Theory therefore explains why pension schemes may adopt passive investment strategies to obtain diversified market exposure and sustainable returns while avoiding excessive portfolio risk and unnecessary investment costs. In this study, the theory consequently provides the theoretical basis for examining how passive investment strategy influences investment returns, asset growth and contribution stability, which collectively contribute to the financial sustainability of voluntary private pension schemes in Nairobi County, Kenya.

IV. Empirical Review

Hughes and Steinberg (2021) assessed the impact of passive investment strategies on financial performance among mutual funds in the United States. A longitudinal research design was applied, selecting 99 mutual funds through random sampling. Data were collected from financial statements and expert interviews and analysed using time-series analysis and regression models. Descriptive findings indicated that passive investment funds exhibited consistent financial performance. Inferential analysis confirmed a strong correlation between passive investment and stable long-term returns. The study concluded that passive investment strategies provided cost-efficient financial growth and recommended that mutual funds adopt index-based investing to optimise returns. However, the study focused on mutual-fund performance in the United States rather than financial sustainability of Kenyan pension schemes, limiting its applicability to the present context.

Banda (2020) investigated the impact of passive investment strategies on financial sustainability among pension schemes in Uganda. A descriptive research design was adopted, and 87 pension schemes were selected through purposive sampling. Data were collected from financial reports and structured questionnaires and analysed using correlation and regression techniques. Descriptive findings indicated that passive investment strategies led to lower management costs and stable fund performance. Inferential analysis demonstrated a significant positive relationship between passive investment and financial sustainability. The study concluded that passive investing was effective for long-term financial security and recommended that pension funds expand their passive investment portfolios. However, the study was conducted in Uganda and did not examine the broader voluntary private pension sector in Nairobi County.

Mache and Mutiso (2020) explored the impact of a passive investment strategy on risk-adjusted returns at Heritage Pension Fund in Nairobi, Kenya. Using a cross-sectional research design and cluster random sampling of 131 investment professionals and risk managers, the study collected data through structured questionnaires. Descriptive analysis revealed that a significant proportion of respondents viewed passive strategies as effective for reducing management costs and controlling risk. Inferential analysis indicated a modest yet statistically significant association between passive investment strategies and improved risk-adjusted returns. The study concluded that while passive strategies provide a cost-effective and stable approach, they may offer limited potential for outperforming active strategies in highly volatile conditions. The single-scheme focus and limited generalisability constituted gaps addressed by the current study.

Ndung'u and Waweru (2022) explored the role of passive investment strategies in financial growth among insurance firms in Kenya, while Masawe and Nahashon (2023) analysed effects among SACCOs in Nakuru County. Both studies confirmed positive associations between passive strategies and financial stability or growth, yet neither focused on voluntary private pension schemes nor on financial sustainability metrics such as funded ratios, asset growth, and contribution stability. Collectively, these studies confirm that passive investment is consistently associated with improved cost efficiency and stable outcomes across financial institutions; however, they leave a contextual and conceptual gap regarding how passive investment strategy, specifically index alignment, fee reduction, and controlled risk exposure, influences financial sustainability among voluntary private pension schemes broadly within Nairobi County, Kenya. This study sought to address this gap.

V. Conceptual Framework

The conceptual framework of the study illustrates the relationship between passive investment strategy, the independent variable, and financial sustainability, the dependent variable.

Independent Variable

Dependent Variable

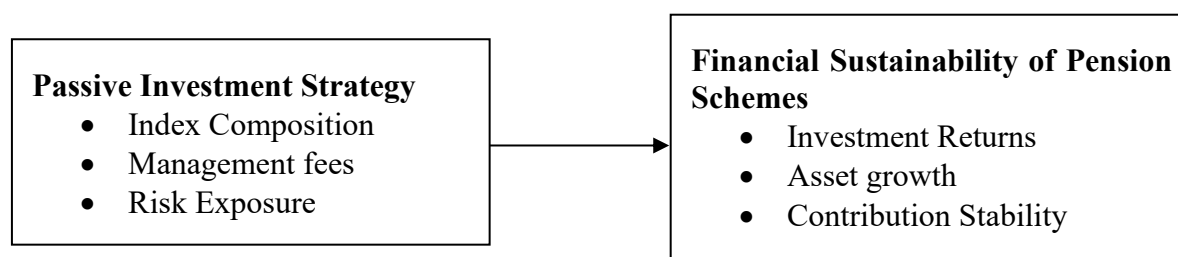


Figure 1: Conceptual Framework

Source: Researcher (2026)

VI. Methodology

The study adopted a descriptive research design, appropriate for describing the extent to which voluntary private pension schemes in Nairobi County adopt passive investment strategy and for determining whether variations in passive investment strategy were associated with significant variations in financial sustainability. The study was conducted in Nairobi County, Kenya, focusing on the 22 voluntary private pension schemes registered with the Retirement Benefits Authority. The target population comprised 110 employees consisting of branch managers, finance officers, pension officers, business development managers, and operations officers drawn from the 22 schemes. A census approach was employed because the population was manageable. A structured questionnaire employing a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), was used to collect primary data on passive investment strategy and financial sustainability. A pilot test involving 11 respondents was conducted in pension schemes within Kiambu County to refine the research instrument. Content, construct, and criterion validity were established through expert review and alignment of questionnaire items with theoretical constructs. Reliability was assessed using Cronbach's Alpha, with a threshold of 0.70 applied. Data were analysed using SPSS, combining descriptive statistics (frequencies, means and standard deviations) with inferential statistics comprising Pearson correlation analysis and multiple regression analysis. Prior to inferential analysis, diagnostic tests for normality, multicollinearity, and autocorrelation were conducted.

VII. Results

7.1 Response Rate

A total of 110 questionnaires were distributed to respondents, out of which 97 were correctly filled and returned, resulting in a response rate of 88.2%. According to Babbie (2012), a response rate of 65% or higher is considered sufficient for analysis; the 88.2% response rate obtained was, therefore, adequate for data analysis. Table 1 presents the response rate for the study.

Table 1: Response Rate

Category	Frequency	Percentage (%)
Completely Filled	97	88%
Incomplete	13	12%
Total	110	100%

7.2 Demographic Characteristics

7.2.1 General Information

The study collected demographic information to provide context for the findings and to assess the representativeness of the sample. The key demographic variables included the duration the respondents have been working in the pension scheme sector, and the job designation of the respondents. Table 2 summarises the distribution of the respondents' characteristics.

Table 2: General Information

Demographic	Category	Frequency	Percentage
Duration of Service	0 – 5 years	27	28%
	6 – 10 years	28	29%
	11 – 15 years	23	24%
	16 – 20 years	11	11%
	Above 20 years	8	8%
Job Description	Branch Managers	20	20.62%
	Finance Officers	21	21.65%
	Pension Officers	17	17.53%
	Business Development Manager	18	18.56%
	Operations Officers	21	21.64%

From the findings, the majority of respondents had served for 6–10 years (29%), followed closely by those with 0–5 years of service (28%), 11–15 years (24%), 16–20 years (11%), and above 20 years (8%). This distribution indicates a predominantly experienced workforce, with most respondents possessing between 0 and 15 years of relevant industry exposure. Such a profile suggests that the participants have adequate practical knowledge and familiarity with investment practices, regulatory requirements, and financial sustainability challenges in voluntary private pension schemes, thereby enhancing the credibility and depth of the data collected on investment strategies.

In terms of job description, Finance Officers and Operations Officers constituted the largest group (21.65%), followed by Branch Managers (20.62%), Business Development Managers (18.56%), and Pension Officers (17.53%). This balanced representation across core functional roles ensures that the study captures diverse and complementary perspectives from professionals directly involved in financial management, operational oversight, scheme administration, business growth, and day-to-day pension operations. The inclusion of these key decision-making and implementation cadres strengthens the reliability of the findings regarding the effect of active, value, income, and passive investment strategies on the financial sustainability of voluntary private pension schemes in Nairobi County, Kenya.

7.3.2 Pension Fund Profile

The study also sought to determine the profile of the pension fund, by assessing the type of pension scheme the organisations operate, the approximate value of the fund's total assets under management, the number of active members currently enrolled in the pension scheme, and whether the pension scheme engages an external fund manager for investment purposes. The findings are as indicated in Table 3.

Table 3: Pension Fund Profile

Type of Pension Scheme	Defined Benefit (DB)	None	0%
	Defined Contribution (DC)	22	100%
	Hybrid (Combination of DB and DC)	None	0%
	Other	None	0%
Approximate Value	Less than KES 100 million	1	4.54%
	KES 100 million – KES 500 million	3	13.64%
	KES 501 million – KES 1 billion	5	22.73%
	Over KES 1 billion	13	59.09%
Active Members	Below 100	0	0%
	100 – 499	0	0%
	500 – 999	1	4.54%
	1000 and Above	21	95.46%
Does Pension Scheme Engage External Fund Manager	Yes	12	54.55%
	No	6	27.27%
	Partially	4	18.18%

From the findings in Table 3, with regard to the approximate value of assets under management, most of the pension schemes were relatively large. Specifically, 13 schemes (59.09%) reported asset values of over KES 1 billion, 5 schemes (22.73%) had assets ranging from KES 501 million to KES 1 billion, 3 schemes (13.64%) reported KES 100 million to KES 500 million, while only 1 scheme (4.54%) had assets of less than KES 100 million. These findings indicate that the majority of the sampled pension funds manage substantial asset portfolios. Therefore, the study largely reflects the experiences of medium to large pension schemes in terms of asset size.

In relation to active membership, the data revealed that 21 schemes (95.46%) had 1,000 members and above, while only 1 scheme (4.54%) had between 500 and 999 members. No scheme reported active membership below 500. This indicates that nearly all the sampled pension funds serve a large member base. The concentration of responses in the “1,000 and above” category suggests that the pension schemes under study are predominantly large in terms of membership.

On the issue of engaging external fund managers, 12 schemes (54.55%) indicated yes, 6 schemes (27.27%) indicated no, and 4 schemes (18.18%) indicated partially. These findings show that majority of the pension schemes fully engage external fund managers, while a smaller proportion either manage investments internally or use a mixed approach. The

presence of partial engagement suggests that some schemes may outsource selected aspects of fund management while retaining internal oversight or management for other investment functions.

Overall, the findings indicate that the sampled pension funds are predominantly large Defined Contribution schemes, characterized by high asset values and large active membership bases. In addition, a majority of the schemes engage external fund managers, either fully or partially. These characteristics provide important context for interpreting the investment strategy and financial sustainability findings of the study, as they show that the analysis is largely based on established pension schemes with relatively significant operational scale.

7.3 Descriptive Statistics:

7.3.1 Passive Investment Strategy

Moreover, the study sought to determine the level of agreement of the respondents on the statements regarding passive investment strategy of pension schemes in Nairobi County, Kenya. The findings are presented in Table 4.

Table 4: Passive Investment Strategy

Statement	S	SA	A	N	D	SD	Mean	Std
	(%)	(%)	(%)	(%)	(%)	(%)		
Alignment with index composition increases investment returns by tracking overall market performance.	97	37	34	10	16	3	3.855	1.185
Index-based allocation promotes asset growth by capturing broad market gains.	97	55	34	8	3	0	4.403	0.778
Lower management fees increase investment returns by reducing operational costs.	97	44	46	7	3	0	4.307	0.738
Reduced management costs enhance asset growth by retaining more earnings within the fund.	97	37	44	16	3	0	4.145	0.807
Appropriate risk exposure increases investment returns by balancing risk and reward.	97	40	45	5	7	3	4.452	0.592
Controlled risk exposure supports asset growth by protecting the fund from excessive losses.	97	37	44	16	3	0	4.145	0.807
Overall Mean and SD							4.240	0.803

S=Sample Size, SA=Strongly Agree, A=Agree, 3=Neutral, D=Disagree, and SD==Strongly Disagree Std= Standard Deviation

The findings in Table 4 indicate that 37% of respondents strongly agreed that alignment with index composition increases investment returns by tracking overall market performance, 34% agreed, 10% were neutral, 16% disagreed, and 3% strongly disagreed, with a mean of 3.855 and a standard deviation of 1.185. This implies that while a majority of respondents recognize the benefit of index tracking for investment returns, there is notable variation in opinion, possibly due to concerns over market inefficiencies or limited outperformance potential in the Kenyan context.

Similarly, 55% of respondents strongly agreed and 34% agreed that index-based allocation promotes asset growth by capturing broad market gains. Only 8% were neutral, 3% disagreed, and none strongly disagreed, yielding a mean of 4.403 and a standard deviation of 0.778. This indicates that most respondents perceive passive index-based strategies as effective in driving long-term asset growth through participation in overall market performance.

Further, 44% strongly agreed and 46% agreed that lower management fees increase investment returns by reducing operational costs, 7% were neutral and 3% disagreed, with a mean of 4.307 and a standard deviation of 0.738. This suggests that reduced management fees associated with passive strategies are highly valued for improving net investment returns by minimizing costs.

In addition, 37% strongly agreed and 44% agreed that reduced management costs enhance asset growth by retaining more earnings within the fund, while 16% were neutral and 3% disagreed, resulting in a mean of 4.145 and a standard deviation of 0.807. This implies that cost efficiency from passive investing is generally seen as supportive of asset growth by preserving more returns for reinvestment. The results also show that 40% strongly agreed and 45% agreed that

appropriate risk exposure increases investment returns by balancing risk and reward, with 5% neutral, 7% disagreed, and 3% strongly disagreed, giving a mean of 4.452 and a standard deviation of 0.592. This highlights that controlled risk exposure in passive strategies is strongly perceived as beneficial for achieving balanced returns.

Lastly, 37% strongly agreed and 44% agreed that controlled risk exposure supports asset growth by protecting the fund from excessive losses, while 16% were neutral and 3% disagreed, producing a mean of 4.145 and a standard deviation of 0.807. This finding demonstrates that passive investment approaches are viewed as effective in safeguarding the pension fund against significant downside risks. Overall, the study established an overall mean of 4.240 and a standard deviation of 0.803, suggesting that passive investment strategy is perceived positively and plays a significant role in enhancing the financial sustainability of voluntary private pension schemes in Nairobi County, Kenya by offering cost efficiency, broad market exposure, and controlled risk.

The implication of these findings is that passive investment strategies, through index tracking, lower management fees, and appropriate risk exposure, contribute meaningfully to stable investment returns and asset growth while reducing operational costs. This approach is particularly valuable for pension schemes seeking long-term sustainability with minimal active management overhead. These results align with findings by Hughes and Steinberg (2021) and Banda (2020), who established that passive investment strategies provide cost-efficient growth, stable long-term returns, and improved financial sustainability for pension funds and mutual funds. Similarly, Mache and Mutiso (2020) found that passive strategies help control risk and reduce management costs in Kenyan pension schemes. Therefore, these findings reinforce the importance of incorporating passive investment approaches alongside other strategies to promote efficiency, resilience, and long-term financial sustainability of voluntary private pension schemes in Nairobi County.

7.3.2 Financial Sustainability

The respondents were asked to indicate their level of agreement regarding the statements on financial sustainability of pension schemes in Nairobi County, Kenya. The findings are presented in Table 5.

Table 5: Financial Sustainability

Statement	S	SA	A	N	D	SD	Mean	SD
		(%)	(%)	(%)	(%)	(%)		
Returns from investments are sufficient to support long-term financial obligations	97	64	29	5	2	0	4.403	0.978
The scheme's investments outperform other similar pension schemes.	97	33	54	8	5	0	4.307	0.938
The total value of the pension fund assets has steadily increased over time.	97	38	43	4	6	9	3.145	0.907
The pension fund effectively expands its asset base through strategic investments.	97	43	11	34	7	5	4.187	0.969
The pension scheme maintains sufficient contributions to meet its obligations.	97	11	35	48	6	0	3.653	0.977
Predictable contribution inflows support the long-term sustainability of the scheme.	97	37	44	16	3	0	4.145	0.807
Overall Mean and SD							2.510	0.933

S=Sample Size, SA=Strongly Agree, A=Agree, 3=Neutral, D=Disagree, and SD=Strongly Disagree Std= Standard Deviation

From the findings in Table 5, 64% of respondents strongly agreed that returns from investments are sufficient to support long-term financial obligations. Another 29% of the respondents agreed, while 5% were neutral, and 2% disagreed, with none strongly disagreeing. The mean was 4.403, and the standard deviation was 0.978. This suggests that most respondents perceive investment returns as adequate for meeting the long-term obligations of voluntary private pension schemes in Nairobi County.

Regarding outperformance, 33% of respondents strongly agreed that the scheme's investments outperform other similar pension schemes, 54% agreed, 8% were neutral, and 5% disagreed, with none strongly disagreeing. The mean was 4.307,

with a standard deviation of 0.938. This implies that a majority of respondents believe their pension schemes deliver competitive investment performance relative to peers in the industry.

Concerning asset growth, 38% strongly agreed that the total value of the pension fund assets has steadily increased over time, 43% agreed, 4% were neutral, 6% disagreed, and 9% strongly disagreed. The mean was 3.145, and the standard deviation was 0.907. This shows mixed perceptions, with many respondents acknowledging steady asset growth while a notable proportion expressed reservations, possibly due to market volatility or economic challenges affecting fund performance.

In relation to strategic expansion, 43% strongly agreed that the pension fund effectively expands its asset base through strategic investments, 11% agreed, 34% were neutral, 7% disagreed, and 5% strongly disagreed. The mean was 4.187, with a standard deviation of 0.969. This suggests that while a significant number of respondents view strategic investments as effective in growing the asset base, a substantial proportion remained neutral, indicating some uncertainty about the consistency or impact of these strategies.

The findings also reveal that 11% of respondents strongly agreed that the pension scheme maintains sufficient contributions to meet its obligations, 35% agreed, 48% were neutral, 6% disagreed, and none strongly disagreed. The mean was 3.653, with a standard deviation of 0.977. This indicates relatively low agreement and high neutrality, suggesting that contribution levels are perceived as only moderately sufficient and may require strengthening to ensure long-term obligations are fully met.

Regarding contribution predictability, 37% of respondents strongly agreed that predictable contribution inflows support the long-term sustainability of the scheme, 44% agreed, 16% were neutral, and 3% disagreed, with none strongly disagreeing. The mean was 4.145, and the standard deviation was 0.807. This indicates that most respondents recognize the importance of stable and predictable contributions in supporting the overall sustainability of the pension schemes.

These findings align with Schaltegger and Burritt (2021) and Nwankwo and Emeka (2023), who emphasized that sufficient investment returns, steady asset growth, and predictable contribution inflows are critical indicators of financial sustainability for pension schemes. Similarly, the Retirement Benefits Authority (2022) highlights that maintaining adequate funded ratios and positive cash flows is essential for long-term viability. Therefore, while voluntary private pension schemes in Nairobi demonstrate moderate to strong financial sustainability, continued focus on enhancing investment returns, asset growth, and contribution stability will be necessary to ensure resilience against economic shocks and demographic pressures.

7.4 Inferential Analysis

7.4.1 Correlation Analysis

The study conducted a Pearson correlation analysis to determine the strength and direction of the relationship between passive investment strategy and financial sustainability of voluntary private pension schemes in Nairobi County, Kenya. Table 6 presents the correlational matrix.

Table 6 : Correlation Matrix

		Passive Investment Strategy
Financial Sustainability	Pearson Correlation	.641
	Sig. (2-tailed)	.000
	N	97

From the findings in Table 9, the study established a strong, positive, and statistically significant correlation between passive investment strategy and financial sustainability ($r = 0.641$, $p = 0.000$). This implies that index tracking, lower management fees, and controlled risk exposure are strongly linked to improved financial sustainability. The findings are consistent with Hughes and Steinberg (2021) and Banda (2020), who established that passive investment strategies were positively associated with stable long-term returns and financial sustainability.

7.4.2 Regression Analysis

Table 7 shows the overall significant test results for the hypothesized research model.

Table 7 : Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.564	.145		.389	.796
	Passive Investment Strategy	.323	.106	.360	3.047	.003

The interpretations of the findings follow the following regression model.

$$Y = 0.564 + 0.323X + \varepsilon \dots\dots\dots \text{Equation 1}$$

Where:

Y = Financial Sustainability

X = Passive Investment Strategy

ε = Estimated Error

From the regression coefficient findings, passive investment strategy revealed a positive and statistically significant relationship with financial sustainability. The estimated coefficient (β_4) is 0.323 with a p-value of 0.003 and a t-statistic of 3.047. Holding other factors constant, a unit increase in passive investment strategy leads to a 0.323-unit increase in financial sustainability. This underscores the contribution of index-based allocation, lower management fees, and controlled risk exposure in enhancing cost efficiency and long-term fund stability.

Further, the findings revealed a p-value of 0.003, which is well below the 0.05 significance threshold. On this basis, the study rejected the null hypothesis and concluded that passive investment strategy has a statistically significant positive effect on the financial sustainability of voluntary private pension schemes in Nairobi County, Kenya.

VIII. Conclusion

The study concluded that passive investment strategy, through the adoption of index-based allocation, lower management fees, and controlled risk exposure, is a critical intervention for reducing operational costs, capturing broad market gains, and protecting assets against excessive losses among voluntary private pension schemes in Nairobi County, Kenya.

IX. Recommendations

Based on the finding that passive investment strategy has a statistically significant positive effect on financial sustainability, the study recommends that the Retirement Benefits Authority develop clear regulatory guidelines and incentive frameworks that encourage voluntary private pension schemes to expand allocations to index funds and exchange-traded funds, and require reporting on the cost-efficiency and risk-control outcomes of such passive initiatives.

The study further recommends that voluntary private pension schemes focus on deepening index-based allocation and reducing management fees, since these dimensions recorded strong positive perceptions, by systematically increasing exposure to broad market indices, negotiating lower fee structures with fund managers, and institutionalising regular benchmarking against relevant market indices. Schemes should also maintain appropriate risk exposure through disciplined index tracking while ensuring that passive strategies remain complementary to other investment approaches so as to sustain investment returns, asset growth, and long-term financial sustainability.

The study further recommends that future research consider a longitudinal or comparative design across different categories of pension schemes in Kenya (voluntary private, occupational, and mandatory schemes such as NSSF) to establish causal relationships and enhance the generalisability of findings on the effect of passive investment strategy on financial sustainability, and to examine the moderating role of regulatory frameworks and trustee competence in this relationship.

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