The Effect of Alternative Investments on the Financial Performance of Pension Funds in Kenya

By: Lilian Muthoni Mungai [1,] Duncan Elly (PhD) [2]

Abstract

Purpose - This research focused on the effects of alternative investments on the financial performance of pension schemes in Kenya.

Methodology - This research was descriptive and Secondary data covering a period of 5 years, 2012-2016, and comprised a population of 442 segregated pension schemes and from which a sample of 90 schemes was selected using stratified sampling technique. Only data from 385 schemes was available. The remaining 57 schemes did not qualify for sampling due to incomplete data, data received did not pass sense checks and also responses to queries were not received on time. The data was obtained from the Retirement Benefit Authority and the Actuaries Survey from Alexander Forbes Consulting. Diagnostic tests carried out were tests for normality, multicollinearity and autocorrelation. They were used to test for data fitness before any further analysis. The study also employed the use of a linear multiple regression model to analyze the effect of alternative investments on the financial performance of pension funds in Kenya. The tests of significance used in the study were the t-test, F-statistic, the R-square and Adjusted R-square.

Findings - From the findings, most pension schemes had the largest allocation in fixed income and government securities and quoted equity, with the least allocation in private equity and venture capital and real estate investment trusts. The R-square test indicated that 10.6% of the variations in the return on investments were due to the weights of the asset classes indicating that the weights of the asset classes are one among many factors which contribute to the returns of the pension funds. The regression coefficients yielded a positive relationship between this alternative asset classes and return on investments except private equity and venture capital.

Implications - Fund managers and Trustees should therefore deliberate about this alternative asset classes which boost the growth of assets under management as well as increase retirees earnings.

[1] *MSc Finance Student at the University of Nairobi, School of Business* (lilianmuthoni45@yahoo.com)
[2] *Lecturer at the University of Nairobi, School of Business* (duncan.elly@uonbi.ac.ke)

Value - Where the level of knowledge in these assets is low, trustees are encouraged to attend the Trustee Development Programme Kenya to gain the relevant knowledge and skills to enable them discharge their fiduciary duties in the management of pensions.

Key Words: *Alternative Investments, Pension Funds, Kenya*

Introduction

Alternative investments are modern innovations in finance. They are a consequence of evolution of international financial markets and changes in the market, which has led to a search for new allocations of surpluses to achieve desired returns on capital. Alternative investments are broad and include diverse products and services thus no single definition could comprehensively characterize this. It is therefore difficult to state if they are a separate category of assets of a subcategory that already exists in the financial market (Anson, 2006). They enable investors achieve positive returns in spite of volatility in the market due to diversity. This is as a result of proper selection of securities in the portfolio and also manager's professionalism.

There are several theories that underpin portfolio management. The Markowitz/Modern portfolio theory asserts that investors prefer higher levels of returns compared to lower levels and are also risk averse. This is because higher levels allow the investor to spend more on consumption and also, given the opportunity to invest they will go for stocks with the smaller risk. It provides that unsystematic risk can be removed by diversification. The Capital Asset Pricing Model (CAPM) asserts otherwise and measures systematic risk. It predicts the expected rate of return of a security given statistics of the rate of return in the market that is expected as well as considering market risk (systematic risk). The Arbitrage Pricing Theory (APT) however, states that the market return is determined by both fundamental and statistical factors. APT therefore states that the return of a given security is a linear function of complex factors in the economy common to all securities (Levisauskaite, 2010).

Pension Funds are subject to regulation and in Kenya this is done by the Retirement Benefit Authority. The RBA Act and IPS (Investment Policy Statement) provide the investment guidelines. The IPS creates a framework whereby the Scheme's investment strategies are determined. This is a safeguard against uninformed investment decisions. The IPS must meet the requirements of the RBA Act, CAP 197. In order to increase long term returns in excess of Kenyan Consumer Price Inflation or KCPI (10.28% as at March 2017), this can be achieved through diversification between a wide range of different asset classes including use of alternative investments. Over the years, the Fund managers/Investors of pension funds have relied on investments in traditional/conventional asset classes. Largely this is because the CMA had not provided clear cut guidelines in investment in alternative assets for pension funds. The approval was provided in 2015, allowing pension funds to invest in these assets. Further, with increased uncertainty in the capital and money market, this has facilitated the need for improved diversification. There is mounting pressure in the returns from investment of Pension Assets due to the turbulent market conditions. There is therefore an increasing need to review the investment strategies. Previous studies undertaken have not attempted to explain the effect of alternative investments on the financial performance of Pension Funds in Kenya. This study therefore sought to address this research gap and answer the question: What is the effect of alternative investments on the financial performance of pension funds in Kenya?

Research Objective

To establish the effect of alternative investments on the financial performance of pension funds in Kenya. Specifically, this study sought to:

(i)   Establish the effect of the weights of private equity and venture capital, REITs, immovable property and private bonds on the return on investments.

(ii)   Determine the relationship between the dependent variable and the control variables, where the control variables were weights of cash and fixed deposits, fixed income and government securities, quoted equity and offshore investments. The strength of the relationships was also identified as well as extent to which each of the variables influences the returns on investments, both the alternative asset classes and control variables.

(iii)   Establish the effects of the weights of the asset classes on the return on investments based on the size of the pension schemes, which is the fund value.

Methodology

The research involved use of descriptive research. Aggarwal (2008) describes descriptive research as a process devoted to information gathering on prevailing conditions for the purpose of description and interpretation. It is not just accumulating and tabulation of facts but is inclusive of proper analyses, interpretation, comparisons, identification of trends and relationships. This research design also sought to analyze and interpret the effect of use of alternative investments on the performance of pension funds in Kenya.

Analytical Model

This study employed the use of a linear multiple regression model to analyze the effect of alternative investments on the financial performance of pension funds in Kenya. The term multiple regression was first used by Pearson (1908), whose purpose is to explain the relationship between a dependent variable and several predictor or independent variables. A comparison was done between the percentage or ratio of the various asset holdings and the return on investment for each of the segregated pension schemes selected. The independent variable for every pension scheme was measured by adding up the returns from the independent variables. A similar model was used by Muia (2015) to establish the relationship between asset allocation and financial performance of pension funds in Kenya.

The model appeared as below:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \varepsilon$$

Where:

Y was the Financial Performance as measured by the risk – adjusted return on investment (RoI) as per the Sharpe Ratio,

Where;

Risk adjusted RoI = $\dfrac{\text{RoI – Risk Free Rate of Interest}}{\text{Portfolio Standard deviation}}$

RoI = $\dfrac{\text{(Current Fund Value - Previous Fund Value)}}{\text{Previous Fund Value}}$ * 100

α was the constant

β was the regression coefficient

X_1 was the weight of private equity & venture capital = (Total private equity and venture capital/Total asset value of the pension fund)

X_2 was the weight of REITs = (Total REITs/Total asset value of the pension fund)

X_3 was the weight of real estate = (Total value of immovable assets/Total asset value of the pension fund)

X_4 was the weight of private bonds = (Total value of private bonds/Total asset value of the pension fund)

X_5 was the weight of cash and fixed deposits in the fund = (Total value of cash and fixed deposits/Total asset value of the pension fund)

X_6 was the weight of fixed income and government securities in the fund = (Total value of fixed income and Government securities/Total asset value of the pension fund)

X_7 was the weight of quoted equity in the fund = (Total value of quoted equity/Total asset value of the pension fund)

X_8 was the weight of offshore investments in the fund = (Total value of offshore investments/Total asset value of the pension fund)

ε was the error term

Results and Discussions

Descriptive Statistics

The descriptive statistics considered were minimum, maximum, standard deviation, mean, skewness and kurtosis. 90 Pension funds were used in the analysis over a five year period, 2012-2016.

Table 1: Analysis and Distribution of Returns for all Pension Funds for the Period Ending 31 December 2016

	1 Year (%)	3 Year (%)
Average	8%	8.3%
Weighted Average	6.3%	7.3%
Range of Returns	20.4%	11.0%
25th Percentile	6.5%	7.6%
Median	8.2%	8.4%
75th Percentile	9.4%	9.0%

Table 2: Analysis of Asset Allocation for the Period Ending 31 December 2016

	Equity	Fixed Income	Property	Offshore
Average	19.6%	74.9%	4.5%	1.0%
Weighted Average	23.5%	65.2%	10.3%	1.0%
Range of Allocation	50.2%	88.4%	88.4%	16.7%
25th Percentile	16.6%	70.9%	0.0%	0.0%
Median	20.2%	77.4%	0.0%	0.0%
75th Percentile	23.9%	82.3%	0.0%	0.0%

Table 3: Descriptive Statistics and Distribution of Variables

	Min	Max	Mean	Std. Deviation	Skewness	Kurtosis
	Stat.	Stat.	Stat.	Stat.	Stat.	Stat.
FV	131,417	28,004,177,000	1,340,937,356	3,356,825,571	4.95	29.75
X_1	0	166,654,657	2,236,062	15,024,775	8.65	80.27
X_2	0	2,725,000,000	34,025,658	256,343,288	9.78	98.23
X_3	0	5,853,274,000	332,446,678	957,480,176	3.67	14.24
X_4	0	1,927,917,000	108,620,936	264,480,283	4.44	22.20
X_5	0	1,731,759,000	51,863,375	136,118,156	6.17	58.00
X_6	0	9,743,212,000	506,647,097	1,219,476,055	4.40	22.31
X_7	0	9,864,976,000	369,802,033	1,109,738,994	5.87	39.88
X_8	0	2,435,849,000	48,715,139	242,325,828	7.83	65.49

From the table above, the largest pension scheme had a fund value of Ksh. 28 billion, with the lowest having a value of Kshs. 131,417. This was attributed to the period the schemes had been in existence. Pension funds that have been in existence for more than 5 years are found to have a bigger fund due to accumulation of contributions and accrued interest. The largest allocation of assets was in Quoted Equity, Kshs. 9.8 billion followed closely by fixed incomes and government securities of Kshs. 9.7 billion. It was therefore consistent with other studies that have been done by Mugambi (2014) and Muia (2015) where the largest allocation was discovered to be in Government Securities. Further, it was discovered that there were several schemes which had not invested in all asset classes but had limited allocation to one or two classes. This was especially where the pension schemes had a small fund value and had only invested in cash and fixed deposits. Private equity and venture capital had the least allocation of Kshs. 166 million with a standard deviation of Kshs. 15 million. The low allocation to this class of assets was attributed to the risky nature of the asset and uncertainty in returns seeing that it was a new asset class.

 All asset classes had a high standard deviation which meant that the weights of the asset classes were not close to the mean but were widely dispersed over a range of values. Among all assets, quoted equities had the highest standard deviation of Kshs. 1.1 billion with the lowest deviation seen in private equity and venture capital of Kshs. 15 million.

From the table above, all asset classes displayed positive values of the skew; the tail was longer to the right meaning that the data was asymmetrical. This was an implication that the analyzed data had a skewed right or positively skewed distribution. Further, all variables had a skew which was greater than zero which was a reflection of asymmetry and distribution of data further away from normal. This was mainly attributed to the diversity in the returns of the different asset classes and the tendency of fund managers to invest in government securities and quoted equity with little allocation in cash and fixed deposits for liquidity purposes. Additionally, the data analyzed revealed a kurtosis of greater than 3 for the fund value and all the asset classes. The kurtosis of normally distributed data is approximately 3 (excess ≈ 0) and this was therefore used as the point of reference. From the analysis therefore, it was noted that the data portrayed leptokurtic distribution because the kurtosis was greater than 3 for all variables. The tails were longer and fatter with a sharp and high peak.

 Diagnostic Tests

Diagnostic tests carried out were tests for normality, multicollinearity and autocorrelation and are provided below. They were used to test for data fitness before any further analysis.

Test for Normality

A normality test was done to determine the distribution of the dependent and independent variables. Variables included were the weights of the alternative asset classes as well as the control variables. The study sought to determine whether the secondary data collected was normally distributed using a histogram. A histogram is a graphical representation that shows the frequency of data of equal size that occurs in successive numeric intervals.

The return on investments was plotted against the weights of the asset classes as can be seen below. The dependent variable (Y) represents the return on investments of the particular pension schemes, the independent variables were the weights of private

equity and venture capital, REITs, immovable property, private bonds, cash and fixed deposits, fixed income and government securities, quoted equity and offshore investments.

The two halves of the histogram were mirror images of each other and thus the distribution was symmetric implying that the data was normally distributed.

Test for Multicollinearity

Multicollinearity was used to test for similarity between the independent variables. If the VIF value is between 1 and 10, then there is no multicollinearity. For all variables analyzed, the VIF was less than 10 and therefore a conclusion of multicollinearity was made. The collinearity statistics are represented below:

Table 4: Multicollinearity Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.141	.024		5.919	.000		
	X_1	-.111	.148	-.037	-.751	.453	.984	1.017
	X_2	.128	.131	.048	.975	.330	.980	1.020
	X_3	.143	.110	.064	1.304	.193	.981	1.019
	X_4	.653	.331	.123	1.973	.049	.613	1.632
	X_5	.197	.106	.092	1.859	.064	.969	1.032
	X_6	-.015	.071	-.014	-.215	.829	.554	1.806
	X_7	.070	.124	.039	.568	.570	.503	1.987
	X_8	2.515	.632	.221	3.978	.000	.771	1.298

Test for Autocorrelation

The Durbin-Watson was used to test for auto-correlation. From the analyzed data, d = 1.912 which was between the 2 critical values $1.5 < d > 2.5$. It was therefore confirmed that there was no first-order linear auto-correlation in the multiple linear regression model.

Table 5: Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.326[a]	.106	.087	.2637573	1.912

a. Predictors: (Constant), X_8, X_3, X_2, X_1, X_5, X_4, X_6, X_7

b. Dependent Variable: Y

Correlation Analysis

Correlation is used to investigate the relationship between two quantitative and continuous variables. Correlation between the dependent variable (return on investments) and the independent variables (weights of alternative assets, weight of cash and fixed deposits, weight of fixed income and government securities, weight of quoted equity and weight of offshore investments) was determined. Pearson's correlation coefficient (r) was used as it measures the strength of the association between variables. This was based on the following data assumptions: the variables were linearly related and they were bivariate normally distributed. The closer 'r' is to ±1, the stronger the relationship.

Given the data under study, the research findings established weak correlation between the return on investments and the weights of the asset classes. All variables except private equity and venture capital exhibited a positive weak correlation of 0.014, 0.064, 0.195, 0.115, 0.16, 0.21 and 0.264 for the weights of REITs, immovable property, private bonds, cash and fixed deposits, fixed income and government securities, quoted equity and offshore investments respectively. This is to say, as weights of this asset classes increase, the return on investment also increases. That is, they move in the same direction. Additionally, all values were closest to zero than 1 exhibiting weak correlation except quoted equity and offshore investments which indicated moderate correlation of 0.210 and 0.264 respectively. The correlation in equity was consistent with a study done by Rotich (2016). The weight of private equity and venture capital had a weak correlation of -0.069. This implied that as units of private equity and venture capital are increased, the return on investment reduces, that is, they move in opposite directions, and that this relationship was weak because it was closer to zero than 1. All correlation coefficients were statistically significant at

a level of 5% and 10% except for 3 variables, weights of private equity and venture
capital, REITs and Immovable property.

Cash and Fixed deposits are held for liquidity, to meet the daily pension funds
expenses such as custody fees, administration fees, management fees, withdrawal
benefits, pension benefits (payroll) and trustee allowances. This therefore explains the
weak positive correlation of 0.115 between this asset class and return on investments.

Table 6: Correlation Coefficients

	Y	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8
Y	1								
X_1	-.069	1							
X_2	.014	-.014	1						
X_3	.064	-.044	-.031	1					
X_4	.195[**]	-.058	-.075	.045	1				
X_5	.115[*]	-.044	-.056	-.072	.125[*]	1			
X_6	.160[**]	-.080	-.114[*]	-.009	.561[**]	.133[**]	1		
X_7	.210[**]	-.109[*]	-.112[*]	.065	.537[**]	.078	.592[**]	1	
X_8	.264[**]	-.066	-.070	-.010	.209[**]	.053	.329[**]	.466[**]	1

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

*. Correlation is significant at the 0.05 level (2-tailed).

Regression Analysis

This is a predictive technique used to determine the relationship between variables
and their importance in the model. To establish the relationship between alternative
investments and financial performance, multiple regression analysis was done.

Model Summary

The findings are presented below:

Table 7: Regression Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.326[a]	.106	.087	.2637573

a. Predictors: (Constant), X_8, X_3, X_2, X_1, X_5, X_4, X_6, and X_7

R-square is used to determine how much of the variations in the return on investments are explained by the model. The R-Square from the output was 0.106 and consequently it can be noted that 10.6% of the variations in the returns on investments were explained by the respective weights of private equity and venture capital, REITs, immovable property, private bonds, cash and fixed deposits, government securities, quoted equity and offshore investments. The remaining 89.4% was a result of unexplained factors.

Discussion of Findings

The study rejected the null hypothesis that there is no relationship between alternative investments and financial performance in Kenya and accepted the alternative hypothesis that there is indeed a relationship between alternative investments and financial performance. The findings are consistent with findings of Muia (2015), increase in weights of fixed and government securities, immovable property, quoted equities and offshore investments in bank deposits impacts on the profitability of pension schemes.

Taking the alternative assets into consideration, from the descriptive statistics, immovable property and private bonds had the largest allocation. Pension funds with a fund value greater than Kshs. 2 billion invested almost 50% of their funds in the real estate sector while exposure in quoted equity was below 20%. Private bonds were statistically significant in the regression analysis implying that given the risky nature of the asset, returns are considerably high and fund managers should not shy away from increasing exposure in this sector. 50% of the pension schemes that did not invest in real estate invested in REITs and this was particularly in schemes with fund values below Ksh. 1 billion. The negative returns in the private equity and venture

capital sector were a disincentive for increased exposure in this asset class. However, given that the market is recovering from a bear run, private equity and venture capital is projected to perform better and generate higher returns for the pension schemes.

From the study, it suffices to say that 10.6% of the variations in the returns of the pension schemes were due to the weights of the asset classes. However, the relationship as evidenced by the correlation analysis is weak which implies that asset class allocations are not the only causative factors of financial performance in pension funds. Consequently, alternative assets except private equity and venture boost the returns of pension funds and increasing exposure in these asset classes will see assets under management grow beyond a compounded rate of 9%.

Additionally, the slow growth in the government securities was attributed to fund managers who divested the assets in corporate bonds and fixed deposits. Owing to the poor performance of the equities in 2015 and 2016, pension schemes should increase their exposure to private bonds.

Alternative investments were an option for well funded pension schemes, this is contrary to research findings by Anantharaman (2011), who asserted that alternative investments are often undertaken by moderately underfunded funds than very underfunded or very well funded pension schemes. Aubry et al (2017) had similar conclusions where large pension funds held more assets in private equity which revealed stronger returns compared to small plans. The results also revealed a statistically significant relationship between alternative investments and returns of the pension schemes.

Conclusions

From the study, it is concluded that alternative investments (private bonds, immovable property, REITs and Government Securities) contribute to the returns of the pension schemes. This is however not the case for private equity and venture capital. It implied that fund managers should strike a balance between these alternative asset classes and traditional asset classes to ensure that pension schemes utilize the growing assets under management as well as maximize returns for the retirees. Offshore investments were not categorized as alternative asset classes in this study but were a control variable. They were however seen to contribute greatly to the returns of the pension schemes. A unit change in the weights of the offshore investments, all factors held constant, will lead to an increase of the returns by 2.515

units. Fund managers should be encouraged to increase allocation in this asset class but at discretion to hedge against any market downturns.

Additionally, from balance of the 89.6% not accounted for in the model was due to other factors not captured in the study and this includes scheme expenses such as custody fees and administration fees, retirement age or age composition of the schemes, rates of contributions and the portfolio management styles as is portrayed by the listed fund managers. From the findings of the study, alternative investments (private equity and venture capital, immovable property, REITs and Private bonds) were seen as a high return area and pension funds should increase exposure in this class of assets. For pension schemes looking at the long term, this will be the most adequate time to allocate more money to quoted equities.

Consequently, the fund managers and Trustees need to familiarize themselves with these alternatives not only for knowledge purposes but also to improve the quality of investment decisions made in the board meetings. During annual general meetings, where members seek clarification on investments and returns, the trustees should be ready to explain to them why they have not considered investing in these new investment vehicles. Any pension scheme that will not take up investment in this asset classes will have missed out on growth opportunities as well as failed to maximize returns to the retirees. Training in the TDPK will bridge the existing knowledge gap and they will begin to appreciate the importance and subsequent benefits of these investment vehicles.

Onyango (2011), in his study on the relationship between investment strategies and financial performance of pension funds in Kenya, discovered that investment strategies have an effect on the financial performance. He discovered that one of the pertinent concerns was imprudent investments that lead to negative returns. Fund Managers and Trustees should therefore exercise discretion in asset allocation. Improved diversification through investment in both traditional and alternative asset classes will not only lead to average performance but also minimize losses in periods of high volatility (Asebedo & Grable, 2004). Alternative investments are sustainable in the long run. Choosing and committing to alternatives is challenging but requires patience, determination and perseverance on the part of investors to see alternative strategies reap a bounty in returns and competitiveness (Liu, 2017).

Recommendations

The Retirement Benefits Authority should seek to increase the caps to investment in immovable property as well as REITs. From the study, private bonds performed better than quoted equity, fund managers should therefore seek to increase allocation of the assets to maximize on returns. They should also monitor investments in immovable property in average performing schemes to ensure that the schemes are not ran down by the growing property expenses as well as institute quarterly reporting of their performance. The investment cap on Government securities should be reduced in as much as they are considered to be risk free investments. From the study, they had a negative effect on the returns of the pension schemes. This will seek to hedge the schemes against any losses that would be incurred in the event the Government is unable to pay back.

Fund managers are experts in investments while some of the Trustees in the pension schemes are illiterate when it comes to investments. RBA should intensify the trainings undertaken by the Trustees in the Trustee Development Programme Kenya (TDPK) to ensure that they have a thorough knowledge of investment tools. Where Trustees do not discharge their duties appropriately and are found to be scrupulous, they should be stripped of their responsibilities. According to Odundo (2017), poor governance in pension schemes is largely due to lack of commitment and seriousness from fund trustees. The Trustees should be ready to attach their property where the schemes continuously offer negative returns as a result of poor management. To counter the bear run that has existed in the Kenyan market in the years 2015 and 2016, fund managers should move to real estate for stable and attractive returns.

Finally, all stakeholders should turn to alternative asset classes in search for yield. As they dip their feet into this not-traditional asset space it is also vital to put into consideration the potential risk involved. Allocation and performance in the REITs was relatively low and disappointing to the fund managers but it is expected that things will begin to look up. It is expected to grow in popularity as the long-term potential becomes apparent to the investors in Kenya. Further, the CMA should therefore encourage specialized REITs, those related to low and medium cost residential properties as they have higher returns and have a lot of demand.

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