

Research Article

# Investment Portfolio Diversification and Financial Performance of Retirement Benefits Schemes in Kenya

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## Abstract

The general objective of the study was to investigate the effect of investment portfolio diversification on the financial performance of retirement benefits schemes in Kenya. The study further examined the moderating effect of foreign exchange rate on the relationship between the variables under inquiry. The study adopted the descriptive research design. The population of study comprised of 87 schemes. The sample size of the study was 72 units and it was determined using the she stratified random sampling technique. The study used both primary and secondary data. The statistical package for social sciences was used in data analysis. The hypothesis testing led to the rejection of  $H_{01}$  and  $H_{02}$ , thus confirming that investment diversification in equities and investment diversification in bonds have a significant positive effect on the financial performance of the retirement benefits schemes in Kenya. The hypothesis testing for the moderated relationship model led to the rejection of  $H_{03}$ , thus confirming that foreign exchange rate has a significant moderating effect on the relationship between investment portfolio diversification and the financial performance of the retirement benefits schemes in Kenya. The researcher therefore, recommends that the retirement benefits schemes should focus on diversifying their investments in equities and bonds because they both have a positive effect on the company's financial performance. The researcher further recommends that the schemes should closely monitor the foreign exchange rate, because it has a significant moderating effect on the relationship between investment portfolio diversification and financial performance.

## Keywords

Investments, Diversification, Equities, Bonds, Financial Performance, Retirement Benefits Schemes, Portfolio

## 1. Introduction

Investment decisions constitute one of the fundamental financial decisions frequently undertaken by entities [6]. Investment decisions entails forgoing current expenditure in favor of saving with a view to wealth maximization [8]. Investment diversification involves undertaking various types of investments with different inherent risks as opposed to committing all finances in one investment [12]. This notion is

consistent with the old adage of not putting all eggs in one hamper [1]. As a result of investment diversification, entities can invest in various financial securities such as equities and bonds through the financial institutions [11]. It is anticipated that as financial intermediaries diversify their assets, their financial performance will upsurge [1].

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## 1.1. Problem Statement

The GDP contributions by the retirement benefits schemes in Kenya stood at 13.3% in 2020, thus portray inferior performances [14]. The suboptimal performance can be attributed to poor investment diversification, this is because, studies indicates that espousing investment portfolio diversification has a tendency of subverting poor performances [12].

The reviewed empirical literature section brought about the methodological gap, since other researchers used mixed research designs as opposed to the descriptive research design used in this study. Other scholars also used the simple linear regression analysis method as opposed to the multiple linear regression model used in this study. Some of the reviewed studies were done outside Kenya and in other industries. Again, the researchers in the reviewed articles, conceptualized their study variables differently from the way this study conceptualized its variables.

In response to the problem in performance and identified research gaps, this study sought to conduct an investigation in an effort to unravel the effect of investment portfolio diversification on the financial performance of retirement benefits schemes in Kenya.

## 1.2. Objectives

- 1) To investigate the effect of investment diversification in equities on the financial performance of retirement benefits schemes in Kenya.
- 2) To determine the effect of investment diversification in bonds on the financial performance of retirement benefits schemes in Kenya.

- 3) To investigate the moderating effect of foreign exchange rate on the relationship between investment portfolio diversification and the financial performance of retirement benefits schemes in Kenya.

## 1.3. Hypothesis

H<sub>01</sub>: Investment diversification in equities has no significant effect on the financial performance of retirement benefits schemes in Kenya.

H<sub>02</sub>: Investment diversification in bonds has no significant effect on the financial performance of retirement benefits schemes in Kenya.

H<sub>03</sub>: Foreign Exchange rate has no significant moderating effect on the relationship between investment portfolio diversification and the financial performance of retirement benefits schemes in Kenya.

## 2. Literature Review

This section presented the conceptual framework which was used in this study. The section also presented a rigorous empirical review and a critique of the of the reviewed studies. The critique of the empirical literature resulted in exposing the research gap which this present study intend to address.

### 2.1. Conceptual Framework

This is a visual-graphic representation of the variables under inquiry (Cooper & Schindler, 2019). Figure 1 was used presenting the conceptual framework of this study.

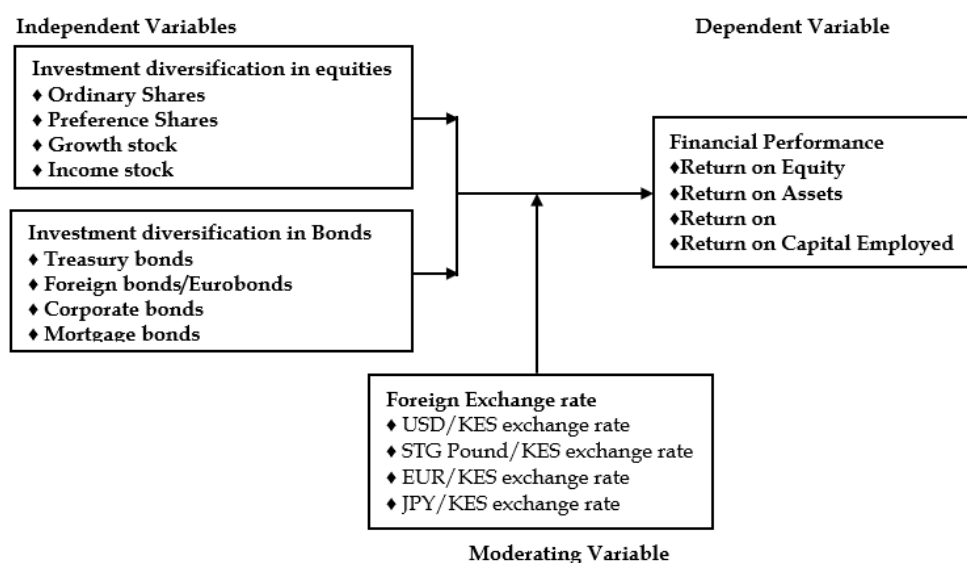


Figure 1. Conceptual Framework.

## 2.2. Empirical Literature Review

Equities are financial instruments which give the holder a share of ownership of the company they are drawn from [3]. Equities are also referred to as stocks or shares and they offer their holders the probability of earning dividends as well capital appreciation [15]. Investment portfolio diversification in equities involves spreading the investment in equities across the various classes of equities [8]. In this study, Ordinary Shares, Preference Shares, Redeemable Shares as well as Income stock constituted the proxies for the investment diversification in equities variable.

A study undertaken by [3] in Tanzania resolved that investment diversification in equities has a significant positive influence on financial performance. The research was undertaken in the small and medium enterprises (SMEs) and it incorporated a descriptive research design. The author employed the simple random sampling technique in sample size determination whereas data analysis was through the simple regression model. The author used return on asset (ROA), Return on Equities (ROE) and Return on Capital Employed (ROCE) as the proxies of the financial performance of the SMEs under inquiry. In another study, [15] concluded that equities diversification affect financial performance. The researchers used the descriptive research design whereas sample size determination was through the stratified random sampling technique. The scholars used questionnaires in collecting their primary data, whereas data analysis was through the multi-linear regression model in SPSS.

In their research on equities and financial performance of selected companies operating at the NSE, [8] concluded that investment in equities significantly affect financial performance. The scholars espoused the positivism research philosophy approach as well as the exploratory research design in their study. The authors used quantitative panel data in their study and data analysis was through the ordinary least squares (OLS) method. In another study on investment portfolio diversification and financial performance, [12] concluded that investment in equities significantly affect financial performance. The researchers adopted the descriptive research approach whereas data was analysed via the regression model enshrined in STATA software.

Bonds are fixed income financial securities in form of long-term loans traded by governments, municipalities as well as corporations [10]. Investment diversification in bonds involves spreading the risk inherent in bond investments across the various classes of bond investments [16]. Bonds can be diversified in terms of government bonds, corporate bonds, municipal bonds, bond maturity as well as bond quality [10]. In this study investment diversification in bonds was proxied by Treasury bonds, Mortgage bonds, corporate bonds as well as foreign bonds/Eurobonds.

A study by [10] on investment diversification and financial performance indicated that investment diversification in

bonds has a significant positive effect on financial performance. The authors employed the stratified sampling technique in sample size determination. The research employed primary as well as secondary data which was collected via questionnaires and data observation schedules respectively. The scholars espoused the descriptive research design and data was analyzed through the multiple regression model.

In another research on investments and financial performance, [2] concluded that investment in bonds has a significant positive effect on financial performance. The researchers used the descriptive research design as well as secondary data. Data analysis was via inferential and the regression statistics in the Statistical Package for Social Sciences (SPSS). In the same endeavor, [16] concluded that investment diversification in bonds affect financial performance. The panel data for their study was collected between 2008 and 2017 whereas the descriptive research design guided their study.

## 2.3. Critique of the Reviewed Literature and Research Gap

The reviewed empirical literature showed that the concept of investment diversification has attracted various researchers around the globe, for instance, [3] carried out his study in Tanzania whereas [15] did their study in Kenya. The reviewed studies also revealed that the studies were done in different industries other than the retirement benefits schemes, for instance, the study by [8] was conducted in the companies listed at the Nairobi Securities Exchange (NSE). The empirical review also revealed that some scholars espoused different data analysis methods different from this study. For instance [3], used simple random sampling technique in their sample size determination whereas their data was via the simple linear regression model. This current study employed the stratified random sampling technique and data analysis was via the multiple linear regression model. Again it was evident that none of the reviewed studies used the foreign exchange rate as a moderating variable. This study therefore undertook to address the identified research gaps.

## 3. Research Methodology

This study adopted the descriptive research design. The target population for this study comprised of the 87 retirement benefits schemes in Kenya. The Yamane Taro 1967 formula was used in sample size determination as shown in equation 1.

$$n = \frac{N}{1 + N\epsilon^2} \quad (1)$$

Where:

N: Target population

n: Sample size

$\epsilon$ : Epsilon (Error term)

Therefore, the sample size for this study was:

$$n = \frac{87}{1 + (87 * 0.05^2)}$$

$$n = 72$$

The stratified random sampling technique was used in selecting the 72 units of analysis out of the pool of the retirement benefits schemes in Kenya.

The study used research questions and data observation schedules in data collection. The collected data was analyzed using SPSS. Data analysis was through descriptive statistics, correlation statistics as well as the regression statistics. The reliability and validity of the research instruments was confirmed through a pilot study before embarking on the full-fledged data collection exercise. Diagnostic tests were conducted on the data prior to running the regression model. The regression coefficients generated from the model were used in testing the hypothesis at 0.05 level of significance and decision made on whether to reject or fail to reject the null hypothesis. The multiple linear regression model which also comprised of the moderator was established as shown in equation 2.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_Z X * Z \quad (2)$$

Where:

Y: Represented Financial performance

$X_1$ : Represented investment diversification in equities

$X_2$ : Represented investment diversification in bonds

Z: Represented the moderating variable

$\beta_0, \beta_1, \beta_2$ : Represent the beta coefficients

$\beta_Z$ : Represented the beta coefficients of the product term ( $X * Z$ )

$\epsilon$ : represented the error term

## 4. Research Findings and Discussion

This section presented the results from the data analysis exercise. Data analysis was in line with the objective of the study as well as the methodology described in the previous sections.

### 4.1. Reliability Test of Research Instruments

The test for reliability in this study was conducted through the Cronbach's Alpha. The overall Cronbach Alpha results of .769 which was above 0.7 in table 1 indicated that the research instruments were reliable.

**Table 1.** Reliability Test of Research Instruments.

Variable	Number of Items	Co-efficient Alpha	Comment
Financial Performance	4	.802	Accepted
Investment Diversification in Equities	4	.713	Accepted
Investment Diversification in Bonds	4	.741	Accepted
Foreign Exchange rate	4	.720	Accepted
Overall Reliability	16	.769	Accepted

### 4.2. Validity Test of Research Instruments

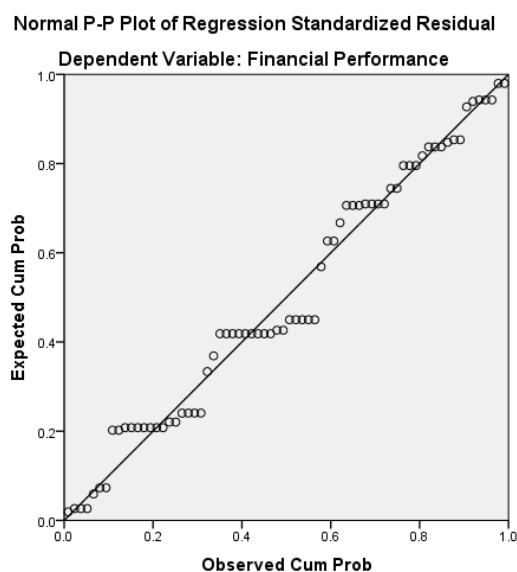
The validity test of the research instruments was confirmed by the Keiser-Mayo-Oklin test (KMO) and the Bartlett test of sphericity. [5] recommend values above .5 to be acceptable KMO values confirming that the sample size considered is adequate. A p-value of less than .05 from the Bartlett test of sphericity signifies acceptable threshold for significant connotation among the study variables [4]. The KMO result of .562 as well as the Bartlett test of sphericity result of .000 in table 2 confirmed that the research instruments were valid.

**Table 2.** Validity Test of Research Instruments.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.562
	Approx. Chi-Square	36.917
Bartlett's Test of Sphericity	df	69
	Sig.	.000

### 4.3. Test for Normality

Normality in a data is confirmed when the normal (Probability to Probability) (P-P) plot tends to follow a linear distribution pattern [13]. Figure 2 shows that the data points in the P-P plot follow a linear distribution pattern, thus confirming that the data set was normally distributed.

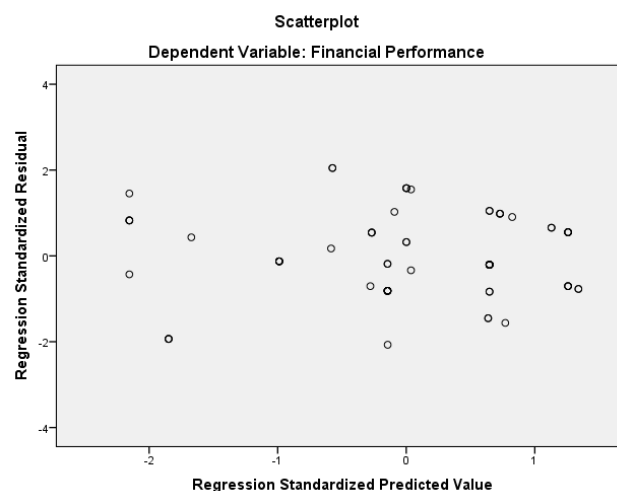


**Figure 2.** Normal P-P Plot.

#### 4.4. Test for Linearity

The scatter plots enshrined in SPSS were used in testing for linearity [7]. Researchers confirm the presence of linear relationship between the independent and the dependent variables when the scatter plot portray an oval shape distribution [9]. The oval shape distribution pattern of the scatter plot pre-

sented in figure 3 confirmed the presence of linearity, thus paving way for the successful application of the linear regression model.



**Figure 3.** Scatter Plot.

#### 4.5. Descriptive Test Results

The descriptive statistics for this study were generated and presented in table 3.

**Table 3.** Descriptive Statistics.

	N	Minimum	Maximum	Mean	Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic
Financial Performance	70	2.25	4.25	3.6214	.50494
Investment Diversification in Equities	70	2.50	4.75	3.6500	.68021
Investment Diversification in Bonds	70	2.35	4.45	3.7320	.51463
Foreign Exchange rate	70	2.75	4.75	3.8929	.56397

The overall mean statistics in table 3 were 3.6214, 3.6500, 3.7320 and 3.8929 for the financial performance, investment diversification in equities, investment diversification in bonds and the foreign exchange rate respectively. The standard deviation values of 0.50494, 0.68021, 0.51463 and 0.56397 for the financial performance, investment diversification in equities, investment diversification in bonds and the foreign exchange rate respectively which were less than their respective

mean score values indicated that the data set for this study was well dispersed around the central tendency.

#### 4.6. Pearson's Correlation Analysis Results

The Pearson's correlation analysis statistics were generated and tabulated in Table 4.

**Table 4.** Pearson's Correlations Coefficients.

		Financial Performance	Investment Diversification in Equities	Investment Diversification in Bonds
Financial Performance	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	70		
Investment Diversification in Equities	Pearson Correlation	.368**	1	
	Sig. (2-tailed)	.002		
	N	70	70	
Investment Diversification in Bonds	Pearson Correlation	.027	.168	1
	Sig. (2-tailed)	.907	.166	
	N	70	70	70

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

The Pearson's correlation analysis outcomes presented in Table 4 indicated a strong positive relationship of .368 between investment diversification in equities and financial performance, which was significant at .05 level (2-tailed). The correlation coefficient for the investment diversification in bonds and financial performance was a weak positive correlation 0.027.

#### 4.7. Regression Analysis Results

This section comprised of the Table 5 for the model summary and Table 6 for the ANOVA. Table 7 was used in presenting the regression coefficient results.

**Table 5.** The Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.644 <sup>a</sup>	.414	.378	.39811

a. Predictors: (Constant), Investment Diversification in Equities, Investment Diversification in Bonds, Interaction between Investment portfolio diversification and foreign exchange rate

b. Dependent Variable: Financial Performance

The R-square outcomes of .414 in Table 5 indicated that over 41.4% of the variability of the dependent variable could be explained by the independent variables. The R-square results showed that the model was a good fit.

**Table 6.** ANOVA.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.291	4	1.823	11.500	.000 <sup>b</sup>
	Residual	10.302	65	.158		
	Total	17.593	69			

a. Dependent Variable: Financial Performance

b. Predictors: (Constant), Investment Diversification in Equities, Investment Diversification in Bonds, Interaction between Investment

Model	Sum of Squares	df	Mean Square	F	Sig.
portfolio diversification and foreign exchange rate					

The significant F test statistic of.000 in [table 6](#) indicated that the model was fit and statistically significant.

**Table 7.** Regression Coefficients.

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
(Constant)	2.561	.326			7.865	.000
Investment Diversification in Equities	.283	.085	.381		3.320	.001
Investment diversification in Bonds	.303	.094	.392		3.235	.002
Interaction between Investment portfolio diversification and foreign exchange rate	.273	.116	.425		2.354	.022

a. Dependent Variable: Financial Performance

Out of the findings in [Table 7](#), the regression model was fitted as shown in equation 3.

$$Y=2.561 +.283 X_1 +.303 X_2 +.273X*Z \quad (3)$$

## 4.8. Hypothesis Testing

The p-value statistics from the regression model in [Table 7](#) were used in testing the hypothesis at.05 level of significance. The summary of the hypothesis testing was given in [Table 8](#).

**Table 8.** Hypothesis Testing.

Hypothesis Statement	P-value	Decision Rule
H <sub>01</sub> : Investment diversification in equities has no significant effect on the financial performance of retirement benefits schemes in Kenya	.000	Reject H <sub>01</sub> , Since P-value <0.05
H <sub>02</sub> : Investment Diversification in bonds has no significant effect on the financial performance of retirement benefits schemes in Kenya	.001	Reject H <sub>01</sub> , Since P-value <0.05
H <sub>03</sub> : Foreign Exchange rate has no significant moderating effect on the relationship between Investment portfolio diversification and the financial performance of retirement benefits schemes in Kenya	.022	Reject H <sub>03</sub> , Since P-value <0.05

## 4.9. Discussion of Key Findings

The chief objective of the study was to investigate the effect of investment portfolio diversification on the financial performance of Retirement Benefits Schemes in Kenya. The study further endeavored to determine the moderating effect of foreign exchange rate on the relationship between invest-

ment portfolio diversification and financial performance.

The hypothesis testing for the direct relationship model in [Table 8](#) lead to the rejection of H<sub>01</sub>, because the P-value of.000 was less than the threshold of.05. The rejection of H<sub>01</sub> depicted that investment diversification in equities has a significant positive effect on the financial performance of the retirement benefits schemes in Kenya. These outcomes were in agreement with the conclusions of [\[3\]](#) who reported a



statistical significant positive relationship between investment diversification in equities and financial performance of Small and Medium Enterprises (SMEs) in Tanzania. Similar results were reported by [15] in their study on the effect of investment decision and financial performance of retail investors in Kisii town.

The results of a p value of 0.001 which was less than 0.05 in table 8 led to the rejection of  $H_{02}$ . The rejection of  $H_{02}$  confirmed that investment diversification in bonds has a significant effect on the financial performance of the retirement benefits schemes in Kenya. These findings were similar to the findings of [10] who reported a significant positive effect on investment diversification in bonds and financial performance in their study on Mutual firms in Nakuru County, Kenya.

The hypothesis testing for the moderated relationship between investment portfolio diversification and financial performance in table 8 led to the rejection of  $H_{03}$  since the P-value of 0.022 was  $< 0.05$ . The rejection of  $H_{03}$  indicated that foreign exchange rate has a significant positive moderating effect on the relationship between investment portfolio diversification the financial performance of retirement benefits schemes in Kenya. These findings were in agreement with the findings of [8] in their study on selected companies at the Nairobi Securities Exchange.

## 5. Conclusion

The conclusions were guided by the constructs in the conceptual framework as well as the findings which emanated from the data analysis. With reference to the first objective, the researcher concluded that investment diversification in equities has a significant positive effect on the financial performance of retirement benefits schemes in Kenya. With reference to the second objective, the researcher concluded that investment diversification in bonds has a significant positive effect on the financial performance of retirement benefits schemes in Kenya.

With reference to the moderating effect of foreign exchange rate on the relationship between investment portfolio diversification and the financial performance of retirement benefits schemes in Kenya, the researcher concluded that foreign exchange rate has a significant positive moderating effect on the relationship between investment portfolio diversification and the financial performance of the retirement benefits schemes in Kenya.

## Abbreviations

ANOVA	Analysis of Variance
GDP	Gross Domestic Product
KMO	Kaiser Meyer Olkin
NSE	Nairobi Securities Exchange
OLS	Ordinary Least Squares
P-P	Probability to Probability

ROA	Return on Assets
ROCE	Return on Capital Employed
ROE	Return on Equity
SME	Small and Medium Enterprises
SPSS	Statistical Package for Social Sciences

## Conflicts of Interest

The authors declare no conflicts of interest.

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