

# CAPITAL STRUCTURE FORMATION AND INVESTMENT PERFORMANCE OF THE GENERAL INSURANCE COMPANIES IN KENYA

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**Abstract:** This study sought to investigate the effect of capital structure formation on investment performance of the general insurance companies in Kenya. The study was anchored on the pecking order, trade-off and agency cost theories. Firm size tested the moderation effect in the relationship. The descriptive research design was employed whereas the panel regressions and correlation analysis tested the relationships strength and direction in the study models. The study target population comprised of seventy-two insurance companies. The sample consisted of thirty-nine general insurance companies purposively sampled. Secondary data was collected using customised schedules. The study revealed that long-term debt had a significant positive effect on return on assets whereas it showed a significant negative relationship with return on equity. The total debt had a significant negative relationship with the return on assets and equity. The total equity had a significant negative relationship with the return on equity. The firm size had a positive moderating effect on the return on assets and equity. The study recommended the use of long term debt to achieve improved investment performance. Further studies focusing on life and composite insurance companies can use longer period panel data on short term debt and staff productivity to facilitate comparisons.

**Keywords:** Capital Structure Formation, Long-term debt, Total Debt, Total Equity, Firm Size and Investment Performance.

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## 1. INTRODUCTION AND BACKGROUND

Insurance is important in financial services intermediation in economic activities. Therefore, the sector transfers risk and mobilises savings for investment. Kripa and Ajasllari (2016) assert that demand for insurance services expands with economic growth through the creation of new insurable assets and property. However, Einav, Finkelstein and Levin (2011) argue that the insurance markets suffer from imperfect competition, underwriting risk selection, dynamic product costs and information asymmetry. Nthenge (2012) argues that the investment performance of insurance companies in Tanzania is suppressed by undercapitalization and has curtailed contribution to the gross domestic product. The general insurance business has a significant role in economic growth through the mobilization of resources.

The government regulates the industry for fair competition, ethical conduct and compliance, stability and consumer protection. The industry annual report for the year 2016 showed that, seventy-two registered insurance and reinsurance companies carried out business. The general insurance sector offered services in general insurance and asset management. The industry in the year 2016 received a gross premium income of Kshs 196.64 billion. The report further indicates that the general insurance business contributed about 63% of this income, approximately, Kshs 123.88 billion. The report shows that this amount was below the previous year by 7%. The general insurance business premiums had grown by 10.2% in the year 2016 which was lower than the average growth rate of 17.2% experienced in the sector during the preceding four years. Furthermore, the year 2016 industry annual report showed that insurance penetration was about

2.7%, showing a decline of 0.1% from the previous year's performance of 2.8%. This measure by definition is taken as the ratio of the gross direct insurance premiums to the gross domestic product. The general insurance sector penetration stood at 1.7% in the year 2016 (2015:1.8%). The industry penetration achieved ranked below the world average of 6.28%.

Modigliani and Miller (1958 & 1963) based on the perfect market conditions asserted that capital structure formation is irrelevant to the performance of the firm. This first proposition argued for the neutrality of the source of capital on the performance of the firm. However, the second proposition accounted for the use of debt and acknowledged its magnifying power on earnings under imperfect market conditions. The imperfect markets accounted for taxes, transaction costs and risk. This proposition appreciated the magnifying power of debt on the earnings and value of the levered firm. The second proposition, therefore, forms the basis of theoretical inquiry into the achievement of an optimal combination of debt and equity to maximise return in the firm.

Investment performance measurement is crucial in the determination of business survival and offers the shareholders the opportunity to gauge their worth. Furthermore, it is useful in appraising the efficiency and effectiveness of resource managers. Management has the arduous task of underpinning internal and external factors that contribute to performance with the primary objective of maximising shareholders' value (Kripa & Ajasllari, 2016). Gugong *et al.* (2014) and Koech (2013) argue that the return on assets and the return on equity more explicitly capture the investment interest of both debt and equity holders in a firm.

The return on assets and equity is influenced by size. Dang and Li (2015) argue that the size of a firm is reflected as its total assets. An inference from economies of scale supports the view that the value of total assets held influences the firms' turnover and the return on investment. Therefore, in evaluating the performance of the general insurance firms it was prudent to moderate for firm size.

### **1.1 Statement of the Problem**

Successful firms earn positive net present value on investments to maximise shareholders' wealth. However, of considerable interest are the options of capital for the firm to realise these sterling results. The pattern of results in Table 1.1 supported the view that the debt and equity combination realise higher performance than equity only financing. The return to both debt and equity investors were higher at 6.84% compared to the return to equity only investors at 5.4%. Therefore, the analysis of performance ought to capture both debt and equity to offer a choice on the type and combination of capital to use for optimal performance of the firm.

However, the focus of most recent empirical studies has been on either debt or equity and the impact on financial performance. The combination of debt and equity in the same analytical model has not received adequate attention. Salim and Yadav (2012) tested how debt affected the profitability of Malaysian listed companies. The models also included firm size and growth as the other explanatory variables, but excluded total equity. The results showed a negative relationship with performance. Cekrezi (2015) evaluated debt and the return on assets of the insurance industry in Albania. A negative relationship with total debt was found. The study used only debt to operationalize the capital structure. Saputra *et al.* (2015) evaluated the effect of debt and equity on performance in Indonesia. A negative relationship was found with the return on assets while the return on equity was positive. This study used the two variables in the capital structure but the mixed results offer a dilemma that triggers further research.

Okura and Yamaguchi (2016) examined the debt equity ratio of non-life insurance firms in Japan. The study revealed that debt-equity ratio had no contribution to the return on equity. However, firm size which was included as a direct independent variable had a significant positive link with the return on equity. The study employed descriptive evaluation to analyse the data of 16 firms for five years. The study analysed return to equity investors and ignored the debt holders. This, therefore, failed to capture the broad view of capital structure formation and did not account for the moderation effect of firm size.

Addae *et al.* (2015) tested how the three forms of debt in a capital structure affect the return on equity. The size was included as the other explanatory variable in the regression model. However, total equity was excluded in the analysis. The results showed that short term debt had a significant positive relationship with financial performance while the long term and total debt revealed a negative effect on the Ghanaian listed firms. Mbugua (2014) evaluated long term and total debt effect on the return on assets for listed firms at the NSE. A significant negative relationship was observed. However, the analytical model excluded total equity and firm size moderation.

This study explored the empirical gap by examining the contribution of debt and equity on the return on assets and equity in the same model. The return on assets captured the return due to the debt and equity investors whereas the return on equity captured the equity investors. Therefore, to debunk the fallacy on the use of debt and equity in a capital structure formation this study sought to determine; how long term and total debt and total equity with firm size moderation contributed to investment performance.

## **1.2 Objectives of the Study**

### **1.2.1 General Objective of the Study**

The main objective sought to analyse capital structure formation effect on investment performance of the general insurance companies in Kenya.

### **1.2.2 Specific Objectives**

The study was based on the following specific objectives:

- i. To examine how long-term debt affect the investment performance of the general insurance companies in Kenya.
- ii. To evaluate how total debt affect the investment performance of the general insurance companies in Kenya.
- iii. To determine how total equity affect the investment performance of the general insurance companies in Kenya.
- iv. To analyse the moderating effects of firm size on the relationship between capital structure formation and investment performance of the general insurance companies in Kenya.

## **2. LITERATURE REVIEW**

### **2.1 Theoretical Literature Review**

Pecking Order Theory was introduced by Donaldson (1961) and Myers (1984) to show that debt and equity affect performance. Management has the stewardship role to determine the mix of debt and equity to employ for profitability. Therefore, Myers (1984) postulated that the behaviour of management and the performance trends convey signals that are picked by investors. Myers and Majluf (1984) argue that internal finance is preferred due to its cost efficiency in the acquisition. The external equity is costly to acquire due to the higher floatation costs and its negative signalling effect. Moreover, profitable firms tend to avoid debt.

Agency Cost Theory was introduced by Jensen and Meckling (1976). The modern business model that separates ownership from control creates the need to employ managers. Jensen and Meckling argued that the contractual relationship creates operational costs. These costs are ultimately borne by the shareholders. These authors observed that the management is paid competitive salaries and offered several other incentive schemes. However, the advantage of incentives is that they may be tied to the performance of the firm and the performance contracts signed between the managers and the shareholders through the board of directors.

Trade-off Theory postulates that the use of debt is advantageous to the firm. Debt brings in the benefit of interest tax shield but introduces financial distress costs Kraus and Litzenger (1973). Jensen (1986) using the free cash flow hypothesis argues that a shift from equity to the use of debt increases the firm value because debt reduces the opportunities for the management to waste resources. Furthermore, the shareholders' wealth can be maximised at the level where the marginal benefit and the cost of debt are equal. Pike and Neale (2009), Pandey (2010) and Welch (2009) assert that capital structure formation decisions are continuous and under the control of the managers. When a target capital structure is designed, future financing of projects and investment should be sourced in the proportions of debt and equity as per the set company policy to maintain the cost of capital at the projected weighted average cost.

### **2.2 Empirical Literature Review**

#### **2.2.1. Long-Term Debt and Investment Performance**

This type of capital represents claims repayable beyond five years. Addae *et al.* (2013) found that long term debt had a significant negative effect on the profitability of listed Ghanaian firms. Long term debt was measured as the non-current liabilities and profitability as the return on equity. Secondary panel data was collected about the thirty-four listed firms for five years from published reports by the Ghanaian stock exchange.

The study adopted a descriptive survey design, while data was analysed using multiple analysis of regression. The study included firm size as an independent variable. This failed to offer the moderation effect of the variable. Furthermore, the study only measured performance due to the equity investors using the return on equity and ignored the debt holders. A more inclusive measure of performance such as the return on assets would have been appropriate.

The investigation by Saputra *et al.* (2015) of the Indonesian financial industry showed long term debt had a significant negative effect on performance. Secondary panel data was collected about leverage. The summation of long term, short term and total debt were taken as a ratio of total assets to measure leverage. Firm size and asset growth were also taken as proxies of capital structure formation. The return on assets and equity measured performance. The study never controlled for the effect of firm size and the insurance sub-sector had a small sample of ten firms.

Gambo *et al.* (2016) established that long term debt that was captured as non-current liabilities had a positive impact on performance. The performance was measured as the return on assets and equity. The ex-post facto research design was employed. Panel data was collected from the annual financial returns from the study sample that consisted of the four listed companies in the cement market segment. The data were analysed using multiple regression analysis. The study purports to have included firm size as a control variable but the analysis showed it as a direct independent variable. However, the size was found to positively and significantly affect performance.

Muchiri *et al.* (2016) showed that long term debt had an insignificant negative effect on performance. The study employed secondary panel data from sixty-one non-financial firms listed at the EASE. The data were analysed using correlations, descriptive statistics and multiple regressions. The study did not control for the effect of firm size.

### **2.2.2 Total Debt and Investment Performance**

This type of capital is the summation of short-term and long-term liabilities. Abor (2005) showed that listed firms in Ghana had total debt significantly and positively affecting profitability. The performance was measured as the return on equity. However, long term debt negatively affected performance. The study employed a descriptive research design whereas multiple regressions were applied to analyse the panel data from twenty-two listed firms. The study did not account for the moderating effect of firm size but instead analysed it as a direct independent variable. The study evaluated performance due to the equity investors only and ignored the debt holders.

Cekrezi (2015) established through multiple regressions that for Albanian firms, total debt significantly and negatively influences financial performance measured as the return on assets. The study analysed panel data from five insurance companies for six years. The asset size of the companies was included as a direct independent variable. This modelling seems to have assumed that asset size did not have a moderating effect on performance. The sample of five companies was small to produce robust results for generalization to the population.

Wainaina (2014) tested how financial leverage and firm size affect the financial performance of insurance companies. The total debt showed a significant and positive effect on performance. The study used thirty-six companies purposively sampled who traded from 2008 -2012. The performance was measured as return on assets. This study did not isolate the categorical performance of debt and equity.

Mwangi and Murigu (2015) found that total debt and owners' equity significantly and positively influenced the return on assets. Firm size was established to have a negative effect on performance. The study sample consisted of twenty-two general insurance companies whose panel data was analysed using multiple regressions. The study included firm size and management competence as direct variables that influence performance instead of testing for their moderation effect.

### **2.2.3 Total Equity and Investment Performance**

The equity capital of a company represents the long-term claims of the shareholders. This type of capital is not refundable except when the firm is winding up. Pandey (2010) argues that the owners of equity capital have a beneficial interest in the company. Therefore, this motivates them to continuously monitor the actions of management. The monitoring is delegated to the board of directors and the use of system controls within the organization.

Gugong *et al.* (2014) found that the use of owners' equity had a positive link with the financial performance of Nigerian firms. Financial performance was set as the return on assets and equity. Correlation and simple linear regression analysed the data from the sample of seventeen listed companies. This sample appears inadequate to produce strong statistical results for extrapolation to the population. This study used only one independent variable, owners' equity. However, firm performance is a function of multiple factors including debt.

Kaguri (2013) used a study sample of seventeen companies and secondary panel data. The study established that firm size, leverage, age and liquidity positively affected the financial performance of insurance companies in Kenya. The return on assets was the measure of financial performance. The sample of seventeen was small to provide strong statistical results for generalization to the population. Furthermore, the study evaluated performance in a generalized manner without isolating the individual investor categories of debt and equity.

Muchiri *et al.* (2016) showed an insignificant positive relationship between equity and the return on equity. However, the return on assets showed an insignificant negative relationship with the financial structure. The study employed an explanatory research design and multiple regressions on sixty-one companies' data for analysis. The regression model was found to exhibit random effects characteristics. Furthermore, the study did not moderate the effect of firm size.

**2.2.4 The Effect of Firm Size on Investment Performance**

Mugenda and Mugenda (2003) argued that the research study ought to control any variable that is not the main subject but could influence the results. Furthermore, Sekaran (2003) asserts that such an effect may be profound on the relationship among the independent and dependent variables in the study. The total assets block of each company logically impacted its turnover. Moreover, economies of scale theory support the view that the investment performance would vary with turnover. Therefore, this variable was included in the empirical model to test for the perceived significant contingent influence.

Getahun (2016) showed how firm size and leverage positively influenced the financial performance of insurance companies in Ethiopia. The study used secondary data from seventeen insurance companies and measured performance as the return on assets. The study included firm size as an independent variable in the regression analysis rather than as a moderator. Furthermore, the measurement of return on assets could not isolate the specific performance attributable to debt and equity investment.

Muiruri and Bosire (2014) found that firm size and profitability significantly and positively influence the capital structure of listed insurance companies. The study used multiple regressions to analyse data from the six listed companies that operated in Nakuru town. The sample was small for generalisation of the results to the population. The study used firm size as a direct variable rather than as a moderator and did not isolate the effect of debt and equity.

Wahome *et al.* (2015) tested the profitability effect on the debt ratio. When, management control was included in the study as a moderating variable, it showed a positive effect on the results that covered six insurance companies listed on the NSE. This treatment was similar to the inclusion of firm size as a moderator in this study analytical model.

**3. RESEARCH METHODOLOGY**

**3.1. Research Design**

The study adopted a descriptive research design in its analysis. Sekaran (2003) argued that this design is appropriate in describing variables characteristics and their relationship. The study main interest was to examine how debt and equity influence investment performance with the moderation effect of firm size. Therefore, this design was used to explain the characteristics of debt and equity and contribution to the return on assets and equity.

**3.2. Empirical Models and Hypotheses**

The pooled models in equations 1 to 4 adapted from Baron and Kenny (1986) estimated the model variables linkage. The models explained the proxies of capital structure formation without and with the moderator on the dependent variable. Furthermore, Hill, Griffiths and Lim (2011) and Sekaran and Bougie (2009) demonstrated that the moderation effect of a variable is observable when included as a product with the independent variables in the analysis.

**3.2.1 The Models Specification**

$$ROA_1 = \beta_0 + \beta_1 X_{1,it} + \beta_2 X_{2,it} + \beta_3 X_{3,it} + \epsilon_{i,it} \dots \dots \dots \text{Equation 1}$$

$$ROA_2 = \beta_0 + \beta_1 X_{1,it} + \beta_2 X_{2,it} + \beta_3 X_{3,it} + \beta_4 Z_{i,t} + \epsilon_{i,it} \dots \dots \dots \text{Equation 2}$$

$$ROE_1 = \beta_0 + \beta_1 X_{1,it} + \beta_2 X_{2,it} + \beta_3 X_{3,it} + \epsilon_{i,it} \dots \dots \dots \text{Equation 3}$$

$$ROE_2 = \beta_0 + \beta_1 X_{1,it} + \beta_2 X_{2,it} + \beta_3 X_{3,it} + \beta_4 Z_{i,t} + \epsilon_{i,it} \dots \dots \dots \text{Equation 4}$$

Where;

$\beta_0$ : Intercept of the regression equation.

$\epsilon$ : The stochastic term that explained the random variation of the independent variables on the dependent variable.  $i$ =Firm and  $t$ = Time period.

$\beta_1, \beta_2, \beta_3, \beta_4$ : Regression coefficients.

$ROA_1$ : ROA without moderation.  $ROA_2$ : ROA with moderation.

$ROE_1$ : ROE without moderation.  $ROE_2$ : ROE with moderation.

$X_1$ : The long-term debt divided by total assets.  $X_2$ : The total debt divided by total assets.

$X_3$ : The total equity divided by total assets.  $X_4$ : The natural logarithm of total assets. The ratios in  $X_1, X_2$  and  $X_3$  were used to scale down the data.

$Z: (X_1)(X_2)(X_3)(X_4)$ : The product denoted as,  $Z$ , shows the interaction of long term debt, total debt, total equity and firm size.

### 3.3. Target Population

The key issue with research is the desire to extrapolate the sample results to the population (Mugenda & Mugenda, 2003). Therefore, the target population should be identified at the design stage of the research work. Furthermore, the population of a study should comprise of members with similar characteristics, Sekaran (2003). The study population comprised of seventy-two insurance firms. The sample of thirty-nine general insurance companies was purposively drawn from the population.

### 3.4. Sampling

Kothari (2004) viewed a sample as a subset of the population. Moreover, sampling is necessary for research efficiency and effectiveness. Furthermore, purposive sampling can be applied to obtain a sample that produces reliable results for generalization to the population in answering the research questions, Mugenda and Mugenda (2003).

This study purposively sampled thirty-nine general insurance companies as a major segment in the market whose results are generalizable to the industry. The sample size of thirty-nine companies was deemed large and adequate for statistical inferences.

## 4. RESEARCH FINDINGS AND DISCUSSION

### 4.1. Descriptive Analysis

The descriptive statistics of the sample results were used to summarize the basic characteristics of the data by extracting the following attributes. Therefore, the numerical indices on the minimum, maximum, mean, standard deviation and skewness were extracted and presented in Table 4.1.

Table 4.1: Descriptive Statistics

	No.observ	Minimum	Maximum	Mean	Std. Dev.	Skewness	
<b>Return on assets</b>	163	-.1735	.1374	.053460	.0556370	-1.380	.190
LDTA	163	.05799	1.18198	.5098312	.15497684	.488	.190
DTA	163	.0622	1.4052	.610908	.1590404	.383	.190
TETA	163	.02045	1.40844	.3948165	.16112248	1.576	.190
X1X2X3X4	163	.00231	20.94424	1.809651	1.7114037	9.563	.190
<b>Return on equity</b>	161	-.1857	.1093	.043628	.0441022	-1.878	.191
X1X2X3X4	161	.0030	10.5984	1.745343	.9298522	7.069	.191
LTDTA	161	.0585	1.1678	.511282	.1493635	.597	.191
TDTA	161	.0628	1.5376	.607365	.1587452	.804	.191
TETA	161	.0610	1.4005	.401731	.1573546	1.690	.191

Source: Research Findings (2020)

The results showed a mean return on assets of 5.346% whereas the return on equity achieved a mean of 4.362%. The return on assets and equity had standard deviation values of 0.0556 and 0.0441 respectively. This implied the insurance firms' performance did not show abnormal dispersions from the mean. The results further showed that when assessed on the return on assets, the firms use long term debt up to 50.9% in their capital structure and 39.5% of total equity. However, on the return on equity evaluation, the firms use long term debt of up to 51% and total equity at 40% in their capital structure. These findings show the firms preferred the use of long term debt than total equity capital. The moderating effect of firm size was more prominent on ROA than ROE with mean values of 1.80 and 1.74 respectively.

#### 4.2. Correlation Analysis

The analysis performed showed the degree and direction of relatedness between two continuous (i.e. measured on an interval scale) variables. Arkkelin (2014) asserts that the correlation values fall within the range of -1.00 and +1.00. The relationship strength increases when the absolute value tends to 1.00. The results of the analysis were presented in tables 4.2 and 4.3.

**Table 4.2: Correlation Coefficients - Return on Assets (ROA)**

		ROA	LDTA	DTA	TETA	X1X2X3X4
ROA	Pearson Correlation	1	-.082	-.172*	.196*	.058
	Sig. (2-tailed)		.300	.028	.012	.459
LDTA	Pearson Correlation		1	.824**	-.380**	.469**
	Sig. (2-tailed)			.000	.000	.000
DTA	Pearson Correlation			1	-.419**	.490**
	Sig. (2-tailed)				.000	.000
TETA	Pearson Correlation				1	.381**
	Sig. (2-tailed)					.000
X1X2X3X4	Pearson Correlation					1
	Sig. (2-tailed)					

**Source: Research Findings (2020)**

The findings showed that long term debt had a significant negative relationship with the return on assets with a correlation coefficient of -0.082 and a significant F value of 0.3000. The total debt and ROA had a negative relationship with a correlation coefficient of -0.172 and a significant F value of 0.028. The total equity and the ROA had a significant positive relationship with a correlation coefficient of +0.196 and a significant F value of 0.012. The interaction of the independent and the moderating variables had a significant positive correlation with the return on assets of +0.058 and a significant F value of 0.459.

**Table 4.3: Correlation Coefficients-Return on Equity (ROE)**

		ROE	X1X2X3X4	LTDTA	TDTA	TETA
ROE	Pearson Correlation	1	.238**	-.185*	-.257**	.034
	Sig. (2-tailed)		.002	.019	.001	.668
X1X2X3X4	Pearson Correlation		1	.319**	.479**	.354**
	Sig. (2-tailed)			.000	.000	.000
LTDTA	Pearson Correlation			1	.589**	-.434**
	Sig. (2-tailed)				.000	.000
TDTA	Pearson Correlation				1	-.542**
	Sig. (2-tailed)					.000
TETA	Pearson Correlation					1
	Sig. (2-tailed)					

**Source: Research Findings (2020)**

The findings showed long term debt related negatively with the return on equity with correlation coefficients of -0.185 and a significant F value of 0.019. The total debt related negatively with the return on equity with a correlation coefficient of -0.257 and a significant F value of 0.001. The total equity had a significant positive relationship with the return on equity with a correlation coefficient of +0.034 and a significant F value of 0.668. The interaction of the independent variables and the moderation effect of firm size had a significant positive correlation with the return on equity of +0.238 with a significant F value of 0.002.

### 4.3. Regression Analysis

The panel regression analysis is a means of objectively assessing the degree and the character of the relationship between the independent and dependent variables (Sekaran & Bougie, 2009). Furthermore, the regression coefficients indicate the relative importance of the independent variables in predicting the dependent variables. The study sought to establish an approximation of a functional linear relationship in the model.

#### 4.3.1. Diagnostic Tests

The study performed multicollinearity and Hausman tests to determine the suitability of the panel data to run the regression analysis.

##### 4.3.1.1. Multicollinearity Test

Kothari and Garg (2014) and Sekaran and Bougie (2009) assert that the multicollinearity problem is tolerable and/ or controlled when the variable inflation factor values are below 10.00 at the 95% confidence interval (tolerance value=0.1). Furthermore, correlation indices of less than 0.7 are not a pointer to the problem of serious multicollinearity. The results in tables 4.2, 4.3 and 4.4 confirmed that this problem was controlled.

**Table 4.4: Multicollinearity Test-VIF Values**

	VARIANCE INFLATION FACTORS(VIF)			
	LTDTA	TDTA	TETA	X1X2X3X4
<b>ROA Without interaction</b>	3.136	3.253	1.219	-
<b>ROA With interaction</b>	3.388	4.236	2.861	3.145
<b>ROE Without interaction</b>	1.575	1.811	1.458	-
<b>ROE With interaction</b>	1.798	4.239	3.405	3.825

**Source: Research findings (2020)**

The variance inflation factor values ranged between 1.219 and 4.239 as presented in table 4.4. These values were below the criterion value of 10.00.

##### 4.3.1.2. Hausman Test

This test was performed on the panel data to choose a model suited to the data. The null hypothesis preferred the random-effects rather than the fixed-effects model. Greene (2012) asserts that a model has random effects characteristics when the significant F values are less than 0.05 at 95% confidence level. Otherwise, it has fixed effects characteristics. The return on assets models summary had significant F values of 0.017 and 0.029, while the return on equity models summary had significant F values of 0.003 and 0.007. The alternative hypothesis was therefore refuted and the null hypothesis adopted. Therefore, the data was concluded to have exhibited the characteristics of a random-effects model from the results in table 4.5.

**Table 4.5: Hausman Test Results**

MODEL DESCRIPTION	R <sup>2</sup>	Significant F value
<b>ROA without interaction</b>	0.062	0.017
<b>ROA2 with interaction</b>	0.066	0.029
<b>ROE1 without interaction</b>	0.086	0.003
<b>ROE2 with interaction</b>	0.087	0.007

**Source: Research findings (2020)**

#### 4.3.2. Regression Results

Panel regression analysis was performed using the SPSS Version 23 on the empirical models. The analysis used **ROA** and **ROE** as the dependent variables. The independent variables (**X<sub>1</sub>**, **X<sub>2</sub>** and **X<sub>3</sub>**) were regressed against the dependent variables with the inclusion of **X<sub>4</sub>** as a moderator where applicable. The results were presented in tables 4.6, 4.7 and 4.8. The interaction of the independent variables and firm size was taken as the product of **X<sub>1</sub>**, **X<sub>2</sub>**, **X<sub>3</sub>** and **X<sub>4</sub>** and represented by **Z**.



4.3.2.1. Regression Models Summary

Table 4.6: Models Summary

DEP. VAR.	Change Statistics								
	R	R <sup>2</sup>	Adj. R <sup>2</sup>	S.E	R Square Change	F Change	df1	df2	Sig. F Change
ROA1	.248	.062	.044	.0543983	.062	3.487	3	159	.017
ROA2	.257	.066	.042	.0544508	.066	2.784	4	158	.029
ROE1	.293	.086	.069	.0425617	.086	4.931	3	157	.003
ROE2	.295	.087	.063	.0426826	.087	3.705	4	156	.007

Predictors: (Constant), TETA, LDTA, DTA, X1X2X3X4  
 Dependent Variable: ROA and ROE

Source: Research Findings (2020)

**KEY**

ROA1 & ROE1-Model summary without moderating effect

ROA2&ROE2- Model summary with moderating effect

4.3.2.2. Regression Coefficients

Table 4.7: Return on Assets (ROA)

Model NO.		Unstandardized Coeff		t	Sig.	95.0% Conf.Int. for B		Collinearity Statistics	
		B	Std. E			L. Bound	U. Bound	Tol.	VIF
1	(Constant)	.053	.026	2.06	.041	.002	.104		
	LDTA	.074	.049	1.51	.132	-.023	.170	.319	3.136
	DTA	-.096	.048	-1.98	.049	-.192	-.001	.307	3.253
	TETA	.055	.029	1.87	.063	-.003	.113	.821	1.219
2	(Constant)	.077	.039	1.99	.048	.001	.153		
	LDTA	.062	.051	1.22	.222	-.038	.163	.295	3.388
	DTA	-.118	.055	-2.14	.034	-.228	-.009	.236	4.236
	TETA	.027	.045	.591	.555	-.062	.115	.350	2.861
	X1X2X3X4	.004	.004	.833	.406	-.005	.012	.318	3.145

Source: Research Findings (2020)

Table 4.8: Return on Equity (ROE)

Model NO.		Unstandardized Coeff		t	Sig.	95.0% Conf.Int. for B		Collinearity Statistics	
		B	Std. E			L. Bound	U. Bound	Tol.	VIF
1	(Constant)	.124	.024	5.135	.000	.077	.172		
	LTDTA	-.024	.028	-.832	.407	-.079	.032	.635	1.575
	TDTA	-.083	.029	-2.909	.004	-.139	-.027	.552	1.811
	TETA	-.046	.026	-1.763	.080	-.097	.005	.686	1.458
2	(Constant)	.113	.041	2.793	.006	.033	.194		
	LTDTA	-.020	.030	-.659	.511	-.080	.040	.556	1.798
	TDTA	-.070	.049	-1.435	.153	-.166	.026	.191	4.239
	TETA	-.031	.050	-.627	.531	-.130	.067	.185	3.405
	X1X2X3X4	-.003	.008	-.334	.739	-.018	.013	.207	3.825

Source: Research Findings (2020)

**Key**

Model NO.1: Regression coefficients without moderation

Model NO.2: Regression coefficients with moderation

The return on assets model with firm size interaction had a constant term value of  $\beta_0 = 0.077$ . The independent variables produced the following regression coefficients,  $\beta_1 = 0.062$ ,  $\beta_2 = -0.118$ ,  $\beta_3 = 0.027$  and the interaction  $\beta_4 = 0.004$ . The final summary model for the return on assets with interaction was concluded as;

$$Y = 0.077 + 0.062X_1 - 0.118X_2 + 0.0027X_3 + 0.004Z$$

The model was valid as it had a significant F value of 0.029. This value was below the critical value of 0.05 at 95% confidence interval. The model had a constant term of 0.077. This implied that when the explanatory variables are held constant, the sector would achieve a positive return on assets of 7.7%.

The model correlation coefficient, R, of 0.257 indicated a positive correlation between the observed and predicted values of the dependent variable. The coefficient of determination,  $R^2$ , the value of 0.062 indicates that 6.2% of the variations in the dependent variable could be explained by the regressors (long term debt, total debt and total equity) in the absence of the moderating variable. However, the  $R^2$  value increased from 0.062 to 0.066 when the moderating variable was included to interact with the independent variables.

The return on equity model with the firm size interaction had a constant term,  $\beta_0 = 0.113$ . The independent variables produced the following regression coefficients,  $\beta_1 = -0.020$ ,  $\beta_2 = -0.070$ ,  $\beta_3 = -0.031$  and the interaction  $\beta_4 = -0.003$ .

The final summary model for the return on equity with interaction was concluded as;

$$Y = 0.113 - 0.020X_1 - 0.070X_2 - 0.031X_3 - 0.003Z$$

The model was valid as it had a significant F value of 0.007. This value was below the critical value of 0.05 at 95% confidence interval. The model had a constant term of 0.113. This implied that when the explanatory variables are held constant, the sector would achieve a positive return on assets of 11.3%.

The model correlation coefficient, R, of 0.295 showed a positive correlation between the observed and predicted values of the dependent variable. The coefficient of determination value,  $R^2$ , of 0.086 showed that 8.6% of the variations in the dependent variable could be explained by the regressors (long term debt, total debt and total equity) in the absence of the moderating variable. However,  $R^2$  value increased from 0.086 to 0.087 with the inclusion of the moderating variable in the analysis.

#### **4.4 Long-term Debt and Return on Debt and Equity**

The study evaluated long term debt effect on investment performance. Long term debt had a regression coefficient of +0.062 in the return on assets regression. This implies that a unit increase in this variable would increase the return on assets by 6.2%. Therefore, the findings showed that this variable had a significant positive effect on the return on assets.

These results are consistent with Gambo *et al.* (2016) who found that long term debt had a significant positive effect on firm performance measured as the return on assets. However, the results contradict Saputra *et al.* (2015) and Muchiri *et al.* (2016) who found a significant negative relationship and insignificant relationship respectively.

The contradiction of Saputra *et al.* (2015) could be attributed to the context, their study covered financial firms in Indonesia. The insurance sector was only analysed as a subset of the study population while Muchiri *et al.* (2016) studied only listed companies at the NSE. A similar analysis of long term debt showed a regression coefficient of -0.020 for the return on equity model. This implies that a unit increase in this variable would decrease the return on equity by 2.0%. Therefore, the findings show that this variable had a significant negative effect on the return on equity.

These results are consistent with Saputra *et al.* (2015) findings that long term debt had a significant negative correlation with the return on equity. However, this contradicted Gambo *et al.* (2016) and Muchiri *et al.* (2016) who established that long term debt had a positive but insignificant relationship with the return on equity. The discrepancies can be linked to the varying context of the studies. Gambo focused on the Nigerian cement industry while Muchiri focused on firms listed at the EASE.

#### **4.5 Total Debt and Return on Debt and Equity**

Secondly, we examined total debt effect on investment performance. The total debt had a regression coefficient of -0.118 for the return on assets model. This implied that a unit increase in this independent variable would decrease return on assets by 11.8%.

The findings showed that total debt had a significant negative effect on the return on assets. Cekrezi (2015) and Mauwa, Namusongead and Onyango (2016) similarly found that total debt (leverage) had a significant negative relationship with

the return on assets. However, the results contradict Kaguri (2013), Muchiri and Bosire (2014), Wahome *et al.* (2015), Wainaina (2014) and Getahun (2016) who established that total debt had a significant positive relationship with the return on assets.

A similar analysis showed that total debt had a regression coefficient of -0.070 for the return on equity model. This implied that a unit increase in this independent variable would decrease the return on equity by 7%. The findings showed that total debt had a significant negative effect on the return on equity of the general insurance companies in Kenya. The results contradict Abor (2005), Getahun (2016) and Kaguri (2013) who found that total debt had a significant positive relationship with the return on equity. The contradiction could be due to the foreign countries context.

#### **4.6 Total Equity and Return on Debt and Equity**

Thirdly, we evaluated the total equity effect on investment performance. Total equity had a regression coefficient of +0.0027 for the return on assets model. This implied that a unit increase in this independent variable would increase the return on assets by 0.27%. The findings showed that total equity had an insignificant positive effect on the return on assets of the general insurance companies in Kenya. The findings were consistent with Gugong *et al.* (2014) and Mwangi and Murigu (2015) who found that total equity had a significant positive link with the return on assets.

However, the results contradict Muchiri *et al.* (2016) who established an insignificant negative correlation among total equity and the return on assets. The contradiction could be due to the different sectors analysed. Muchiri *et al.* (2016) studied the non-financial sector. A similar analysis showed that the return on equity had a regression coefficient of -0.031. This implied that a unit increase in this independent variable would decrease the return on equity by 3.1%. The findings showed that total equity had a significant negative effect on the return on equity of the general insurance companies in Kenya. The results were similar to Saputra *et al.* (2015) who found that total equity had a significant negative correlation with the return on equity. However, the findings contrast that of Gugong *et al.* (2015) who established that total equity had a positive correlation with the return on equity.

#### **4.7 Moderating Effect of Firm Size on Return on Debt and Equity**

Fourthly, we evaluated the moderating effect of firm size on the relationship between capital structure formation and investment performance. The regression results showed that the return on assets model had a coefficient of determination,  $R^2$ , the value of 0.066 compared to the value of 0.062 when there was no interaction. Therefore, when firm size was included 6.6% of the return on assets could be explained by the predictor variables compared to 6.2% when the firm size was excluded. Firm size was, therefore, concluded to have had a significant positive effect on return on assets. The findings can be attributed to the notion that firm size brings to the business the advantages of economies of scale. The findings are in agreement with Kaguri (2013), Getahun (2016), Muiruri and Bosire (2014) who found that firm size had a significant positive link with the return on assets.

A similar analysis of the return on equity summary model showed a coefficient of determination,  $R^2$ , the value of 0.087 compared to the one generated without firm size moderation of 0.086. Therefore, when firm size interacted with the independent variables 8.7% of the return on equity could be explained by the predictor variables compared to 8.6% when firm size was not included. Firm size was therefore concluded to have a significant positive effect on return on equity. The results are consistent with Getahun (2016), Kaguri (2013) and Muiruri & Bosire (2014) who found that firm size had a significant positive relationship with the return on equity.

## **5. CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Conclusion**

The conclusions presented are based on the findings and the research questions. The study concluded that long term debt positively to the return on assets and equity. Firms that used long term debt were more likely to avoid financial distress due to the favourable loan covenants that allow longer repayment periods. The study concluded that total debt contribute negatively to the relationship with the return on assets and equity. The short-term debt component triggered the negative effect due to the short repayment period of this type of debt.

The study concludes that total equity had a significant negative relationship with the return on assets and equity. The use of equity capital does not offer any tax advantage to magnify earnings. The study concluded that firm size contributed positively to the relationship between capital structure formation and investment performance. This finding can be explained by the economies of scale advantage.

## 5.2 Recommendations

The study found that debt and equity were used to form the capital structure of the general insurance companies in Kenya. The study, therefore, recommends that an optimal mix of debt and equity capital to maximize investment performance is necessary for the sector. Long term debt was found to have a positive relationship with investment performance. Therefore, the sector is recommended to use long term debt to mitigate financial distress. The sector should use moderate amounts of equity in the formation of capital structure. Investment performance has a significantly negative relationship with this type of capital. The advantageous effect of firm size on performance in the sector should be exploited through expansions and mergers to benefit from the economies of scale.

## 5.3. Suggestions for Further Research

The use of short term debt is recommended for further research. The studies could include staff productivity in the capital structure formation for the moderation effect. Future studies could consider the use of longer period panel data to achieve more observations and robustness in statistical inferences. The current study used panel data for five years that limited the number of observations. Further studies can also focus on the composite and life insurance companies to facilitate comparison of results.

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