

Journal of Finance and Accounting

ISSN Online: 2616-4965



Stratford
Peer Reviewed Journals & books

Effect of Leverage on Financial Performance of Listed Firms in the Nairobi Securities Exchange

Anthony Mugetha Irungu, Prof. Willy Muturi, Dr. Tabitha Nasieku & Prof. Patrick Ngumi

ISSN NO: 2616-4965

Effect of Leverage on Financial Performance of Listed Firms in the Nairobi Securities Exchange

^{*1}Anthony Mugetha Irungu, ²Prof. Willy Muturi, ³Dr. Tabitha Nasieku & ⁴Prof. Patrick Ngumi

^{*1}PhD Candidate, Jomo Kenyatta University of Agriculture and Technology

²Lecturer, Jomo Kenyatta University of Agriculture and Technology

³Lecturer, Jomo Kenyatta University of Agriculture and Technology

⁴Lecturer, Jomo Kenyatta University of Agriculture and Technology

^{*}E-mail of corresponding author: tonymugetha@gmail.com

How to cite this article: Irungu A. M., Muturi W., Nasieku T. & Ngumi P. M. (2018): Effect of Leverage on Financial Performance of Listed Firms in the Nairobi Securities Exchange. Journal of Finance & Accounting, Vol 2(3) pp. 35-54.

Abstract

The Kenya government, together with companies and individuals in the private sectors, has put concerted efforts in ensuring the existence of a favorable environment for doing business in the country. Consequently, while some firms listed in the NSE have improved in performance, there are others that have experienced declining fortunes and some have even been delisted from the NSE over the last decade. Significant efforts to turn around such companies or even liquidate them have focused mainly on restructuring of firm level factors. However, managers and practitioners still lack adequate guidance for attaining optimal decision on firm level factors. The specific objectives of the study was to determine the effect of leverage on financial performance of listed firms in the Nairobi securities exchange. The study employed panel research design that is non-experimental in nature. This study targeted all the 64 firms listed on the Nairobi Securities Exchange. A census of all the 64 firms listed in Nairobi Securities Exchange was used as a unit of analysis. Secondary data extracted from the financial statements was used to compute the relevant ratios and encompassed panel data. The study employed a dynamic panel data regression model while ANOVA was used to test the relationship between the variables across the sectors. Test of hypothesis was done at 95% confidence interval. The study found out that there was a negative and significant relationship between leverage and financial performance of financial and non-financial firms. Based on the findings, the study concluded that leverage has a negative and

significant effect on financial performance of Listed Firms in the Nairobi Securities Exchange. Leverage allows a financial institution to increase the potential gains or losses on a position or investment beyond what would be possible through a direct investment of its own funds. The leverage ratio can thus be thought of as a measure of balance sheet or, to the extent that it also includes off-balance-sheet exposures economic leverage.

Keywords: *Leverage, Financial Performance & Nairobi Securities Exchange.*

1.1 Introduction

Financial performance plays an imperative role in the firm performance that is expressed in monetary term. Financial performance emphasizes on variables related directly to the financial report. It is prudent that before investing their funds, investors should first have a knowledge about the performance of the firm (Deitiana & Habibuw, 2015). The modest way to determine the performance of a firm is to look at the company's financial statement. Due to intense competition among the firms, a firm is expected to be able to maintain and/or improve its performance in order to compete with others. Consequently, the firm can be able to increase its market share as well reduce its operational costs. This is the direction the firm can take to edge its competitors and remain viable, conversely it can register dismal performance and be edged out of the business.

Leverage allows a greater potential returns to the investor than otherwise would have been available, but the potential loss is also greater: if the investment becomes worthless, the loan principal and all accrued interest on the loan still need to be repaid. This constitutes financial risk. The degree of this financial risk is related to the firm's financial structure. The total combination of common equity, preferred stock and short and long-term liabilities is referred to as financial structure. That is, the manner in which the firm finances its assets constitutes its financial structure. If short-term liabilities are subtracted from the firm's financial structure, we obtain its capital structure (Naceur & Goaid, 2008). Leverage therefore opens up opportunities for rivalry predation in concentrated product markets, thus conditioning the performance effect of leverage on the degree of competition in the financial performance of a firm. Leverage allows a greater potential returns to the investor which constitutes a financial risk. The degree of this financial risk is related to the firm's financial structure

There are three types of leverage; balance sheet, economic, and embedded. Balance sheet leverage is the most visible and widely recognized form (Hart, 2002). The leverage ratio can thus be thought of as a measure of balance sheet or, to the extent that it also includes off-balance-sheet exposures economic leverage. A firm can finance its investment by debt and/or equity. The use of fixed-charged funds, such as debt and preference capital along with the owner's equity in the capital structure is described as financial leverage or gearing (Dare & Sola, 2010). An unlevered firm is an all-equity firm, whereas a levered firm is made up of ownership equity and debt. Financial leverage takes the form of a loan or other borrowing (debt), the proceeds of which are (re)invested with the intent to earn a greater rate of return than the cost of interest. If the firm's marginal rate of return on asset (ROA) is higher than the rate of interest payable on the loan, then its overall return on equity (ROE) will be higher than if it did not borrow (Molyneux & Thorton, 1992).

1.2 Statement of the Problem

Two-thirds of firms that are active on the Nairobi Securities Exchange reported losses or reduced earnings in their last financial year (Otieno, 2017). Fifteen of the sixty-four listed firms that traded on the stock exchange reported losses, two less than in the 2015 financial year, while 25 of the

listed firms, or 39%, recorded falling after-tax profits. Another 23 listed firms, or a third, declared increased profits (NSE Report, 2016). The analysis also finds that a third of the companies announced reduced revenues including eight firms that were profitable.

Consequently, while some firms listed in the NSE have improved in performance, there are others that have experienced declining fortunes and some have even been delisted from the NSE over the last decade. Significant efforts to turn around such companies or even liquidate them have focused mainly on restructuring of firm level factors. However, managers and practitioners still lack adequate guidance for attaining optimal decision on firm level factors (Kibet, Kibet, Tenai & Muthol, 2011). Although many problems experienced by the companies that have been put under statutory management were largely attributed to firm characteristics factors (Chebii, Kipchumba & Wasike, 2011), there was little systematic empirical evidence to support this.

Many studies have been done to investigate the effect of certain firm characteristics on financial performance, but only concentrated on a few firm characteristic and have used others as control variables even though results of their findings show that the “other firm characteristic” actually have a significant effect on financial performance (Nunes, Serrasqueiro and Sequeira, 2009; Dogan, 2013). Studies done abroad by Majumdar (1997); Nunes, Serrasqueiro and Sequeira (2008); Lee (2009) and Dogan (2013) investigating the effect of firm size and firm performance totally ignored other potential firm characteristics that have an effect of firm financial performance like leverage.

A number of studies have indicated that a positive relationship exists between particular firm level factors and performance (Lu et al., 2010; Dhanaraj & Beamish, 2003; Kuivalainen, Puumalainen, Sintonen & Kylaheiko, 2010; Tseng *et al.*, 2007; Mittelstaedt, Harben & Ward, 2003; White *et al.*, 1998; Calof, 1993). Others have demonstrated that a negative relationship exists between particular firm level factors and performance (Cubbin & Leech, 1986; Kilantaridis & Levanti, 2000; Poof & Heriot, 2005). Still other studies found evidence that a relationship existed (Tseng *et al.*, 2007) and other research has proposed that no relationship exists between specific firm level factors and performance (Amato & Wilder, 1985). A review of the available literature indicates that the relationships between the components of firm level factors and their role in determining and accounting for variations in firm international performance have conflicting results. Therefore, this study was conducted to establish the effect of leverage on financial performance of listed firms in the Nairobi Securities Exchange.

1.3 Objective of the Study

To determine the effect of leverage on financial performance of listed firms in the Nairobi securities exchange.

1.4 Research Hypotheses

H₀: Leverage has no significant effect on financial performance of listed firms in the Nairobi securities exchange.

2.0 Literature Review

2.1 Theoretical Framework

2.1.1 Trade-off Theory

Kraus and Litzenberger (1973) propagated this theory. According to Kraus and Litzenberger (1973), debt financing offers the firm a tax shield, and that firms that pursue higher levels of debt

gain the maximum tax benefit and ultimately enhance profitability, though higher levels of debt financing in the firm may also increase the possibility and adverse effects of bankruptcy. The trade-off theory emphasizes on the fact that a firm will choose a financial leverage level by balancing the costs and benefits of both the debt and equity financing. That is as the firm increases their debt, the marginal benefit of the debt begins to decline as the marginal cost increases. Therefore the managers needs to establish an optimal mix that will ensure that the marginal cost remain minimum as the marginal benefit move to maximum (Kuang-Hua & Ching-Yu, 2000). The Static Trade-off Theory argued that although the benefit of tax shields may encourage the firms to employ more debt than other external sources available to them, this mode of finance is not free from costs. Myers (1977) observed that as much as levered firms enjoy tax deductibility as a benefit of their leverage, care needs to be taken such that the cost of financial distress associated with the inclusion of debt financing in the capital structure. He observed that the firm's capital structure is at optimal at the point where the cost of using debt and equity is at minimum as compared to the benefit that accrues as a result of using the mix, to allow the firms to trade them off. The firms therefore should seek to establish this optimal point in their capital structure irrespective of their size and earnings.

Dynamic Trade off Theory on the other hand argues that the firm's capital structures may not always be as per their target leverage ratios, but firms may allow the ratio to vary considering the costs and the benefits of the use of debt and equity and also the financing margin that the firm anticipates in the next period. Fischer, Heinkel and Zechner (1989) argued that a dynamic optimal capital structure is an appropriate choice in a case where the firm requires recapitalization. Unlike the static trade off theory where the emphasis is on the targeted leverage ratio that the firm will not be willing to deviate from, the dynamic trade off theory emphasizes on the firm having an optimal leverage range within which they let their leverage ratios vary. The firm only adjusts their capital structure when leverage reaches either of the two boundaries defining the range. The levels of the boundaries vary cross-sectional with firm characteristics such as the volatility of cash flows, size, earnings of the firm, interest rates and bankruptcy costs (Kuang-Hua & Ching-Yu 2000).

This theory is deemed relevant to this study. This is because it assumes that there are benefits to leverage within a capital structure up until the optimal capital structure is reached. In addition the theory recognizes the tax benefit from interest payments.

2.2 Empirical Review

Al-Tally (2014) investigated on the effect of financial leverage on firm financial performance in Saudi Arabia's public listed companies. The overall results of this study were that, in the long term, in the absence of acute economic downturns, lower leverage levels tend to lead to higher profit margins and returns on both assets and equity. It also provides evidence to recommend that, under normal economic conditions, Saudi Arabian firms could attempt to improve their financial performance by balancing their zakat liabilities with their leverage borrowing levels.

Perinpanatha (2014) investigated the impact of financial leverage on financial performance special reference to John Keells Holdings PLC Sri Lanka. The intended to test the hypothesis and to measure a relationship between the financial leverage and the financial performance of the John Keells Holdings plc in Sri Lanka during the periods of 2006-2012. The findings of the study showed a negative relationship between the financial leverage and the financial performance of the John Keells Holdings plc. However, the financial leverage had a significant impact on the financial performance of the John Keells Holdings plc in Sri Lanka.

Wainaina (2014) conducted a study on the relationship between leverage and financial performance of top 100 small and medium enterprises in Kenya. The study used descriptive cross sectional research design. The study found that for the year 2009 liquidity had a greater effect to financial performance followed by leverage while firm size had a minimal impact on financial performance of SMEs. The study also found out that for 2012 leverage, liquidity and firm size explained 62.4% of changes in the financial performance of the SMEs. The study concluded that leverage had a significant influence on the financial performance; the study also concluded that there was a positive relationship between leverage (debt equity ratio) and financial performance of small and medium enterprises in Kenya. The study recommended that for SMEs to effectively determine the funding mix to employ and to maintain a good debt equity ratio, there is need for capacity building of SMEs in areas of business management.

Kale (2014) conducted a study on the impact of financial leverage on firm performance: the case of non-financial firms in Kenya. The study took performance measures in a wider perspective using ROA, ROE and Tobin's Q. In addition to financial leverage the study expanded its explanatory variables by controlling for liquidity, firm size and firm age. The study analyzed the data from the three models using random effect model after the Hausman test results preferred the random effect model while Levin Lin Chu test results for unit roots indicated that the data was stationary. The results revealed that there is a significant negative relationship between leverage and return on assets. The result is also buttressing that profitable firms uses pecking order theory in its financing, the more profitable a firm is, the more likely they are going to reduce its debts hence internal financing is preferred. Findings from the Tobin's Q model indicated that large firms have a positive insignificant relationship between financial leverage and firm performance while the older firms showed an increase in its market value; this is an indication of investors' confidence on the older firms who have built their reputation over a long period.

Abubakar (2015) investigated the relationship between financial leverage and financial performance of deposit money banks in Nigeria, with specific reference to how debt-equity ratio and debt ratio affect return on equity of deposit money banks in Nigeria. Eleven deposit money banks from Tier 1, Tier 2 and Tier 3 classification of banks were sampled using convenience sampling technique for the period 2005-2013. This study adopted both descriptive and correlation analysis. Findings from the descriptive analysis show that about 84% of total assets of deposit money banks in Nigeria are financed by debts confirming that banks are highly levered financial institutions. The correlation analysis revealed a significant relationship between debt-equity ratio and financial performance proxy by return on equity. However, no significant relationship was found between debt ratio and ROE. The study recommends among others that an appropriate debt-equity mix should be adopted by banks if they must improve their financial performance, survive and remain competitive.

Raza (2013) examined effect leverage on company's performance from Karachi Stock Exchange. Panel data methodology was used for companies listed at Karachi Stock Exchange for the year 2004-2009. The study finding established a negative relation between performance and leverage hence a conclusion that long-term debt was more expensive thus utilization of debt in a high level results in a low profitability.

Matemilola, Bany-Ariffin and Azman-Saini (2013) examined the effect of leverage and managerial skills on returns for shareholders. The study used the fixed effects model and multiple linear regression to analyze data collected. Regression analysis results established that leverage had a positive relationship with shareholders' return. Moreover, it was established that managerial

skills had a positive relationship with shareholders' return. The study concluded that leverage and managerial skills may be priced in equity valuation.

Gweyi and Karanja (2014) investigated the impact of leverage on performance of Kenyan registered deposit-taking SACCOs using a sample of 40 Savings and Credit Co-operative Societies. The study used secondary data for period of 2 years from the year 2010 to 2012. The findings of the study established that a positive correlation exists between the debt-equity ratio with return on equity and after tax profits.

Mule and Mukras (2015) investigated the relationship between financial leverage and financial performance of listed Kenyan firms. The study used annual data for a 5 years period starting from the year 2007 to the year 2011. The study using panel data analysis found strong evidence that financial leverage significantly and negatively affects the performance measured using ROA and Tobin Q. Moreover, the study found that financial leverage negative and insignificant effect on performance measured using ROE. The study also revealed that asset tangibility and ownership concentration are important determinants of performance.

2.3 Conceptual Framework

The goal of a conceptual framework is to categorize and describe concepts relevant to the study and map relationships among them. Such a framework would help researchers define the concept, map the research terrain or conceptual scope, systematize relations among concepts, and identify gaps in literature (Creswell, 2003). Below is a figurative representation of the variables to be explored by this study.



Figure 1: Conceptual Framework

3.0 Research Methodology

The study adopted a positivism philosophy. Panel research design was adopted in this study. Panel research design is best suited since panel data was used. Panel research design is a particular design of longitudinal study in which the unit of analysis is followed at specified intervals over a long period, often many years. This study population was all the 64 firms listed in Nairobi Securities Exchange. The study conducted a census of all the 64 firms listed in Nairobi Securities Exchange. The secondary data encompassed panel data. The data for all the variables in the study was extracted from the annual published financial reports of the firms listed in NSE covering the years 2012-2016. The specific financial statements from which the data was extracted from include the income statement, statement of financial position and the notes to the accounts. The study conducted diagnostic tests that included panel Unit Root Test, Test for Fixed or Random Effects, Normality Tests, Multicollinearity, Autocorrelation and Heteroscedasticity tests.

The study employed a dynamic panel data regression model as shown below;

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + e$$

Where;

Y_{it} = Financial Performance

X_{1it} = Leverage

β_0 =Constant

β_1 =Coefficient of the variables

e =Error term

4.0 Results and Discussion

4.1 Correlation Analysis

The study conducted correlation analysis for the financial firms on leverage and ROA and ROE in order to examine the nature of the statistical relationships between each pair of variables. Table 1 shows the correlation matrix of the variable under financial firms.

Table 1: Correlation Matrix for Financial Firms

VARIABLE	ROA	ROE	Leverage
ROA	1.000		
ROE	1.000	1.000	
	0.000		
Leverage	-0.316	-0.216	1.000
	0.002	0.002	

The results in Table 1 show that leverage (-0.316, 0.002) had a negative and significance relationship with Return on Asset. The financial sector results further showed that leverage had a negative and significance relationship with Return on Equity.

The study further conducted correlation analysis for the non-financial firms on leverage on ROA and ROE in order to examine the nature of the statistical relationships between each pair of variables. Table 2 shows the correlation matrix of the variable under financial firms.

Table 2: Correlation Matrix for Non-Financial Firms

VARIABLE	ROA	ROE	Leverage
ROA	1.000		
ROE	0.984	1.000	
	0.000		
Leverage	-0.258	-0.560	1.000
	0.000	0.000	

The results in the non-financial sector show that leverage (-0.258, 0.000) had a negative and significance relationship with Return on Asset. The non-financial sector results showed that leverage (0.560, 0.000) had a negative and significance relationship with return on equity.

4.2 Diagnostic Tests

4.2.1 Test for Multicollinearity

Multicollinearity was assessed in this study using the variance inflation factors (VIF). According to Field (2009) VIF values in excess of 10 is an indication of the presence of Multicollinearity as shown in Table 3.

Table 3: Multicollinearity Results

Financial Sector		Non-Financial Sector
Variable	VIF	VIF
Leverage	1.21	1.68

4.2.2 Panel Unit Root Tests

Unit root tests was conducted using the LLC test to establish whether the variables were stationary or non-stationary. The purpose of this was to avoid spurious regression results being obtained by using non-stationary series. Results in Table 4 indicated that the variables is stationary (i.e. absence of unit roots) at 5% level of significance.

Table 4: Unit root

Financial Sector				Non-Financial Sector		
Variable name	Statistic(a djusted)	P-value	Comment	Statistic(a djusted)	P-value	Comment
ROA	2.232	0.006	Stationary	2.273	0.003	Stationary
ROE	2.278	0.020	Stationary	2.028	0.010	Stationary
Leverage	4.035	0.004	Stationary	4.403	0.001	Stationary

The study therefore concludes that the variables under consideration do not have unit root and are therefore used in levels. This means that the results obtained are not spurious (Gujarati, 2003).

4.2.3 Test for normality

The normality assumption ($ut \sim N(0, \sigma^2)$) was required in order to conduct single or joint hypothesis tests about the model parameters (Brooks, 2008). Table 5 shows the normality results using for skewness and Kurtosis test for the financial firms.

Table 5: Normality Test for Financial Sector

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adjchi2(2)	Prob>chi2
roa	95	0.11310	0.32000	18.07000	0.12100
roe	95	0.11310	0.21000	18.07000	0.26100
leverage	95	0.210000	0.11000	27.12000	0.10000

Table 5 shows the normality results using for skewness and Kurtosis test for the non-financial firms. The P-values were higher than the critical 0.05 and thus we conclude that the data is normally distributed.

Table 6: Normality Test for Non-Financial Sector

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adjchi2(2)	Prob>chi2
roa	195	0.6300	0.29000	13.78000	0.1000
roe	195	0.1800	0.37000	15.12000	0.5000
leverage	195	0.55220	0.10000	56.10000	0.0610

The results in Table 6 indicate that the residuals are normally distributed. The P-values were higher than the critical 0.05 and thus we conclude that the data is normally distributed.

4.2.4 Heteroskedasticity Test

Breusch-Pagan test was used to test for heteroskedasticity. The null hypothesis in the test is that error terms have a constant variance (i.e. should be Homoskedastic). The results in the Table 7 below indicate that the error terms are heteroskedastic, given that the p-value (ROA=0.7431, ROE=0.6914) was less than the 5% (0.000) for financial firms and p-value (ROA=0.692, ROE=0.634) was less than the 5% (0.000) for non-financial firms

Table 7: Heteroskedasticity Test Results

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity					
Ho: Constant variance					
Variable: fitted values	Financial Sector		Non-Financial Sector		
	ROA	ROE	ROA	ROE	
chi2(1)	=	0.013	0.04	0.01	0.03
Prob > chi2	=	0.7431	0.6914	0.692	0.634

4.2.5 Test for Autocorrelation

The study employed the Wooldridge test for autocorrelation to detect the existence of autocorrelation in the data, that is, whether or not the residual are serially correlated over time and

the results are shown in Table 8. The null hypothesis of this test was that there is no first order serial/autocorrelation existed in the data. The test statistic reported is F-test with one and fifty seven degrees of freedom and a value of 1.528. The P-value of the F-test is 0.3610 for financial firms indicating that the F-test is not statistically significant at 5% level. The P-value of the F-test is 0.2810 for non financial firms indicating that the F-test is not statistically significant at 5% level. Hence, the null hypothesis of no autocorrelation is supported and the study concludes that residuals are not auto correlated.

Table 8: Serial Correlation Tests

Financial Firms
Wooldridge test for autocorrelation in panel data
H₀: no first-order autocorrelation
F(1, 57) = 2.394
Prob > F = 0.3610
Non- Financial Firms
Wooldridge test for autocorrelation in panel data
H₀: no first-order autocorrelation
F(1, 57) = 1.528
Prob > F = 0.2810

4.2.6 Hausman Test

When performing panel data analysis, one has to determine whether to run a random effects model or a fixed effects model (Baltagi, 2005). In order to make a decision on the most suitable model to use, both random and fixed effects estimate coefficients. The study used the Hausman's specification test (1978) to choose between fixed and random effect models. Table 9 and 10 shows the results of Hausman test.

Table 9: Hausman Test for ROA

Financial Firms				
	(b) fixed	(B) Random	(b-B) Difference	Sqrt (diag(V _b -V _B)) S.E.
Firm Size	-0.0117	-0.0093	-0.0026	0.0023
chi2(4)	25.81			
Prob>chi2	0.581			
Non-Financial Firms				
	(b) fixed	(B) Random	(b-B) Difference	Sqrt (diag(V _b -V _B)) S.E.
Firm Size	-0.0119	-0.0093	-0.0026	0.0161
chi2(4)	21.37			
Prob>chi2	0.438			

The null hypothesis of the Hausman test is that the random effects model is preferred to the fixed effects model. For ROA model, Hausman test reveals a chi-square of 25.81 with a p-value of 0.581 for financial firms and chi-square of 21.37 with a p-value of 0.438 for non-financial firms indicating that at 5 percent level, the chi-square value obtained is statistically insignificant. Thus, the researcher does not reject the null hypothesis that random effects model is preferred to fixed effect model for ROA as suggested by Greene (2008). Therefore, the random effects model for ROA is therefore adopted.

Table 10: Hausman Test for ROE

Financial Firms				
	(b) fixed	(B) Random	(b-B) Difference	Sqrt (diag(V_b-V_B)) S.E.
Leverage	-0.60111	-0.11688	-0.01499	0.00291
chi2(4)	17.61			
Prob>chi2	1.979			

Financial Firms				
	(b) fixed	(B) Random	(b-B) Difference	Sqrt (diag(V_b-V_B)) S.E.
Leverage	-0.27114	-0.11688	-0.01499	0.00154
chi2(4)	12.42			
Prob>chi2	1.720			

In order to select between the fixed and random effect models, where return on equity (ROE) is the dependent variable, the Hausman test is applied and the results are shown in Table 10. The null hypothesis of the Hausman test is that the random effects is preferred to the fixed effects model. Hausman test results indicates a chi-square value of 12.42 with a P-value of 1.720 meaning that the chi-square value is statistically insignificant at 5 percent level of significance. Hence, the study did not reject the null hypothesis as suggested by Greene (2008). Thus, the study adopted the random effects model.

4.3 Panel Regression Analysis

4.3.1 Effect of Leverage on ROA

Regression analysis was conducted on both financial and non-financial firms to determine whether there was a significant relationship between leverage and ROA. Table 11 presents the regression model on leverage versus ROA in the financial sector.

Table 11: Leverage on ROA for Financial Firms

ROA	Coef.	Std. Err.	T	P> t 	[95% Conf. Interval]
Leverage	-0.1262	0.0397	-3.17	0.002	-0.2042 -0.0482
cons	0.2696	0.0138	19.46	0.000	0.2425 0.29684
R-squared:	0.3587				
F(1,94)	10.07				
Prob	0.015				

The fitted model from the result is

$$Y = 0.2696 - 0.1262X$$

Where: Y = ROA (Return on Asset)

X = Leverage

As presented in the table, the coefficient of determination R Square is 0.3587. The model indicates that leverage explains 35.87% of the variation in ROA. This means 35.87% of the variations in ROA is influenced by leverage. The findings further confirm that the regression model of ROA on leverage index is negative and significant with a coefficient of ($\beta = -0.1262$, $p=0.000$) supported by $F=10.07$. This implies that there exist a negative and significant relationship between leverage and ROA since the coefficient value was negative and the p-values was 0.002 which is less than 0.05. This means that a unitary increase in leverage leads to a decrease in ROA by 0.1262 units holding other factors constant.

Table 12 presents the regression model on leverage versus ROA in the non-financial sector.

Table 12: Leverage on ROA for Non-Financial Firms

ROA	Coef.	Std. Err.	T	P> t	[95% Conf.	Interval]
Leverage	-0.3818	0.04303	-8.87	0.000	-0.4661	-0.29749
constant	0.3127	0.02625	11.91	0.000	0.26129	0.36419
R-squared:	=0.3788					
F(1,194)	=78.73					
Prob	=0.000					

The fitted model from the result is

$$Y = 0.3127 - 0.3818X$$

Where: Y = ROA (Return on Asset)

X = Leverage

As presented in the table, the coefficient of determination R Square is 0.3788. The model indicates that leverage explains 37.88% of the variations in ROA. This means 37.88% of the variation in ROA is influenced by leverage. The findings further confirm that the regression model of ROA on leverage index is negative and significant with a coefficient of ($\beta = -0.3818$, $p=0.000$) supported by $F=78.73$. This implies that there exist a negative and significant relationship between leverage and ROA since the coefficient value was negative and the p-values was 0.000 which is less than 0.05. This means that a unitary increase in leverage leads to a decrease in ROA by 0.1262 units holding other factors constant.

This is consistent with Perinpanatha (2014) who investigated on the impact of financial leverage on financial performance with special reference to John Keells Holdings PLC Sri Lanka and found a negative relationship between the financial leverage and the financial performance of the John Keells Holdings plc. However, the financial leverage had a significant impact on the financial performance of the John Keells Holdings plc in Sri Lanka. The findings also agree with Kale

(2014) who conducted a study on the impact of financial leverage on firm performance and the results revealed that there is a significant negative relationship between leverage and return on assets. Wainaina (2014) in a study on the relationship between leverage and financial performance of top 100 small and medium enterprises in Kenya found that leverage had a significant influence on the financial performance; the study also concluded that there was a positive relationship between leverage (debt equity ratio) and financial performance of small and medium enterprises in Kenya.

4.3.2 Effect of Leverage on ROE

Regression analysis was conducted on both financial and non-financial firms to determine whether there was a significant relationship between leverage and variation in ROA. Table 13 presents the regression model on leverage versus ROE in financial firms.

Table 13: Leverage on ROE for Financial Firms

ROE	Coef.	Std. Err.	T	P> t	[95% Conf.	Interval]
Leverage	-0.0307	.04162	-2.74	0.014	-0.1123	0.05085
constant	0.1242	0.0181	15.5800	0.0000	0.2466	0.3179
R-squared:	=0.4112					
F(1,94)	=53.71					
Prob	=0.000					

The fitted model from the result is

$$Y = 0.12423 - 0.307X$$

Where: Y = ROE (Return on Equity)

X = Leverage

As presented in the table, the coefficient of determination R Square is 0.4112. The model indicates that leverage explains 41.12% of the variation in ROE. This means 41.12% of the variation in ROE is influenced by leverage. The findings further confirm that the regression model of ROE on leverage index is negative and significant with a coefficient of ($\beta = -0.0307$, $p=0.014$) supported by $F=53.71$. This implies that there exist a negative but significant relationship between leverage and ROE since the coefficient value was negative and the p-values was 0.014 which is less than 0.05. This means that a unitary increase in leverage leads to a decrease in ROE by 0.0307 units holding other factors constant.

Table 14 presents the regression model on leverage versus ROE in the non-financial sector.

Table 14: Leverage on ROE for Non-Financial Firms

ROE	Coef.	Std. Err.	T	P> t	[95% Conf.	Interval]
Leverage	-0.3620	0.0444	-8.23	0.000	-0.4482	-0.2757
Constant	0.3088	0.0269	11.44	0.0000	0.25589	0.36179
R-squared:	=0.5078					
F(1,194)	=67.74					
Prob	=0.000					

The fitted model from the result is

$$Y = 0.3088 - 0.3620X$$

Where: Y = ROE (Return on Equity)

X = Leverage

The coefficient of determination R Square is 0.5078. The model indicates that leverage explains 50.78% of the variation in ROE. This means 50.78% of the variation in ROE is influenced by leverage. The findings further confirm that the regression model of ROE on leverage index is negative and significant with a coefficient of ($\beta = -0.3620$, $p=0.000$) supported by $F=67.74$. This implies that there exist a negative significant relationship between leverage and ROE since the coefficient value was negative and the p-values was 0.000 which is less than 0.05. This means that a unitary increase in leverage leads to a decrease in ROE by 0.3620 units holding other factors constant.

This is consistent with Al-Tally (2014) who investigated on the effect of financial leverage on firm financial performance in Saudi Arabia's public listed companies and found that in the long term, in the absence of acute economic downturns, lower leverage levels tend to lead to higher profit margins and returns on both assets and equity. Cheng and Tzeng (2010) argues that leverage allows a financial institution to increase the potential gains or losses on a position or investment beyond what would be possible through a direct investment of its own funds. Naceur and Goaid (2008) finds that leverage allows a greater potential returns to the investor than otherwise would have been available, but the potential loss is also greater: if the investment becomes worthless, the loan principal and all accrued interest on the loan still need to be repaid.

4.4 Hypotheses Testing

Hypotheses were tested using simple linear regression analysis as represented in Table 11, 12, 13 and 14.

H₀: Leverage has no significant effect on financial performance of listed firms in the Nairobi securities exchange.

The hypothesis was tested by using simple linear regression and determined using p-value. The acceptance/rejection criteria was that, if the p value is less than 0.05, we reject the H₀ but if it is more than 0.05, the H₀ is not rejected. The results in Table 11, 12, 13 and 14 for ROA and ROE indicate that leverage had a negative and significant relationship on ROA for financial and non-

financial firms respectively ($\beta = -0.1262, 0.002$; $\beta = -0.3818, 0.000$) and ROE for financial and non-financial firms respectively ($\beta = -0.0307, 0.014$, $\beta = -0.3620, 0.000$). The null hypothesis was therefore rejected. The study therefore adopted the alternative hypothesis that leverage has a significant effect on financial performance of listed firms in the Nairobi securities exchange.

5.0 Conclusions

Based on the findings, the study concluded that leverage has a negative and significant effect on financial performance of Listed Firms in the Nairobi Securities Exchange. Leverage allows a financial institution to increase the potential gains or losses on a position or investment beyond what would be possible through a direct investment of its own funds. The leverage ratio can thus be thought of as a measure of balance sheet or, to the extent that it also includes off-balance-sheet exposures economic leverage. A firm can finance its investment by debt and/or equity. The use of fixed-charged funds, such as debt and preference capital along with the owner's equity in the capital structure is described as financial leverage or gearing. Leverage allows a greater potential returns to the investor than otherwise would have been available, but the potential loss is also greater: if the investment becomes worthless, the loan principal and all accrued interest on the loan still need to be repaid. This constitutes financial risk. The degree of this financial risk is related to the firm's financial structure

6.0 Recommendations

The study recommends the management on firms listed at the Nairobi Securities Exchange to focus on leverage, as it was found to have a significant effect on the financial performance. The firms should regularly carry out a market leverage analysis to make comparison with book leverage will be useful in testing the robustness of observed results. Leverage helps to access the financial risks. It also helps in attaining trading on equity. Achieving leverage can enable significant competitive advantages despite the risk, however, as it can accelerate the speed of revenue acquisition exponentially. Financial Leverage helps to access the financial risks of not being to pay the financial obligations by the firm to the debt holders. It also helps in attaining trading on equity.

7.0 References

- Al-Tally, H. A. (2014). *An investigation of the effect of financial leverage on firm financial performance in Saudi Arabia's public listed companies* (Doctoral dissertation, Victoria University).
- Baltagi, B. H., Bratberg, E., & Holmås, T. H. (2005). A panel data study of physicians' labor supply: the case of Norway. *Health Economics*, 14(10), 1035-1045.
- Banafa, A. S. A. (2016). *The effect of leverage, liquidity, and firm size on financial Performance of listed non-financial firms in Kenya* (Doctoral dissertation, COHRED, Business administration, JKUAT).
- Beard, D.W., & Dess, G.C. (1981). Corporate –Level Strategy, Business- Level Strategy and Firm Performance, *Academy of Management Journal*, 67(4), 78-99.
- Beard, D.W., & Dess, G.C. (2001). Corporate –Level Strategy, Business- Level Strategy and Firm Performance, *Academy of Management Journal*, 67(4), 78-99.

- Chebii, Kipchumba & Wasike, A. (2011). The emerging patterns of power in Corporate Governance. Back to the future in improving Corporate decision making. *Journal of managerial psychology*, 15(5), 477- 507.
- Cheruiyot, C. K. (2013). *The influence of enterprise risk management on strategic management process of Kenya Power And Lighting Company Limited* (Doctoral dissertation, University of Nairobi).
- Cooper, D.R., & Schindler, P.S., (2011). *Business Research Methods* (11th ed.). New Delhi-India: McGraw-Hill Publishing, Co. Ltd.
- Cubbin, J. & Leech, D. (1986). Growth versus profit-maximization: A simultaneous equations approach to testing Marris model. *Managerial and Decision Economics* 7, 123-131.
- Deloitte (2012) Enterprise Risk Management Survey Report 2012. Deloitte & Touche.
- Gilbert, C. (2007). *Enterprise Risk Management Techniques and Practices*. Incisive Media Investments Limited
- Golshan, N. M., & Rasid, S. Z. A. (2012). What leads firms to enterprise risk management adoption? A literature review. In *International Conference on Economics, Business and Marketing Management* (Vol. 29, No. 2012, pp. 276-280).
- Graham, J., Li, S. & Qiu, J. (2012). Managerial attributes and executive compensation, *Review of Financial Studies*, 25,144-186.
- Grossman, S.J., & Hart, O.D. (1983). An Analysis of the Principal –Agent Problem, 51, 5-45.
- Guest, P. M. (2009). The impact of board size on firm performance: evidence from the UK. *The European Journal of Finance*, 15(4), 385-404.
- Gujarati, D. N. (2003).Basic Econometrics. 4th. New York: McGraw-Hill. *Journal of Management Sciences*, Vol 1, Issue 1, 43-52.
- Harc, M. (2015). The Relationship between Tangible Assets and Capital Structure of Small and Medium-Sized Companies in Croatia. *Ekonomski vjesnik/Econviews-Review of Contemporary Business, Entrepreneurship and Economic Issues*, 28(1), 213-224.
- Harris, M., Raviv, A. (1991) “The theory of capital structure”, *Journal of Finance*, Vol. 46, No. 1, pp. 297-355.
- Herciu, M., Ogorean, C., Belascu, L. (2012), “Leveraging tangible and intangible assets by using a possible firm competitiveness index”, *Global business and economics review*, Vol. 14, No. 1/2, pp. 115-124.
- Kaguri, A. (2013). Relationship between firm characteristics and financial performance of life insurance companies in Kenya. *Unpublished M. Sc. Thesis, University of Nairobi, Kenya*.
- Kaguri, A. (2013). Relationship between firm characteristics and financial performance of life insurance companies in Kenya. *Unpublished M. Sc. Thesis, University of Nairobi, Kenya*.
- Kakani, R., Saha, B., & Reddy, V. (2001). Determinants of Financial Performance of Indian Corporate Sector, *Indian Institute of Management Journal*.
- Khalique, M., Shaari, N., Abdul, J., Isa, A. H. B. M., & Samad, N. B. (2013). Impact of intellectual capital on the organizational performance of Islamic banking sector in Malaysia.

- Kibet, B., Kibet, L., Tenai, J. & Mutwol, M. (2011). The Determinants of Leverage at the Nairobi Stock Exchange, Kenya. The Second Asian Business and Management Conference 2011 Osaka, JP: Sage Global Publishers
- Kilonzo, S. (2008). Global Financial Crisis. *It's Impact on Kenya and Possible Strategies to Mitigate the Effects*. Nairobi: Capital Market Authority.
- Margaret, W., & Kevin, D., (2010). *Financial Risk Management for Management Accountants*. The Society of Management Accountants of Canada (CMA Canada), the American Institute of Certified Public Accountants, Inc. (AICPA) and the Chartered Institute of Management Accountants (CIMA).
- Maryam, N. N., Nikoo, M. S., Faezeh, R. S., Hajar, G. P., Elham, T., & Maryam, Y., (2013). 'Factors Affecting Risk and Return of Financial Stocks in Stock Exchange' *Singaporean Journal of Business Economics, and Management Studie*,1 (11), 3.
- Mehrara, Falahati, & Zahiri, (2014). The Relationship between systematic risk and stock returns in Tehran Stock Exchange using the capital asset pricing model (CAPM) *International Letters of Social and Humanistic Sciences* ISSN: 2300-2697, 21, 26-35
- Mittelstaedt, J. D., Harben G. N., & Ward W. A. (2003). How Small Is Too Small? Firm Size as a Barrier to Exporting from the United States. *Journal of Small Business Management*, 41(1), 68-84.
- Modigliani, F., & Miller M.H. (1958). The Cost of Capital, Corporation Finance, and the Theory of Investment. *American Economic Review*, 48(3): 261–97.
- Nagy, N. (2009). *Determinants of Profitability: What Factors play a role when assessing a firm's return on assets?* The University of Akron, Department of Economics.
 Nairobi, Kenya
- Naran, M. (2013). *The effect of company size and voluntary disclosure on financial performance of commercial banks in Kenya*. Unpublished Thesis, University of Nairobi: Kenya
- Narici, L. (1971). *Functional analysis and valuation theory* (Vol. 5). CRC Press.
- Nazir, M.S and Saita, H.K (2013). Financial leverage and Agency Cost: An Empirical evidence of Pakistan *International Journal of Innovative and Applied Finance* 19: 1 – 16.
- Ngare, E.M. (2008). *A survey of credit risk management practices by commercial banks in kenya*, Unpublished MBA Project, University of Nairobi.
- Niringiye, A. & Tuyiragize, R.(2010). *Determinants of a Firm's Level of Exports: Evidence from manufacturing firms in Uganda*. AERC Research paper 196, African Economic Research Consortium. Nairobi.
- Njiru, G.M. (2003). *Credit risk management by coffee co-operatives in Embu District*, Unpublished MBA Project, University of Nairobi
- Njoroge, E. N. (2014). *The effect of firm size on financial performance of pension schemes in Kenya* (Doctoral dissertation, University of Nairobi).
- Nocco, B. W., & Stulz, R. M. (2006). Enterprise risk management: theory and practice. *Journal of Applied Corporate Finance*, 18(4), 8-20.

- Nock (2008): *Enterprise risk management framework and policy; national oil corporation of Kenya, Nairobi, Kenya*; , pp. 167-184
- Nunes, P. J. M., Serrasqueiro, Z. M., & Sequeira, T. N. (2009). Profitability in Portuguese service industries: a panel data approach. *The Service Industries Journal*, 29(5), 693-707.
- Nunes, P. J. M., Serrasqueiro, Z. M., & Sequeira, T. N. (2009). Profitability in Portuguese service industries: a panel data approach. *The Service Industries Journal*, 29 (5), 693-707
- Nyagah, B. K. (2014). *The effect of enterprise risk management on financial performance of pension fund management firms in Kenya* (Doctoral dissertation, University of Nairobi).
- Odongo, S. O. (2015). *The effect of operational growth on financial performance of deposit taking micro finance institutions in Kenya* (Doctoral dissertation, University of Nairobi).
- Ohando, R. O. (2015). *Relationship Between Fraud Risk Management Practices And Financial Performance Of Commercial Banks In Kenya* (Doctoral dissertation, University of Nairobi).
- Olawale, L. S., Ilo, B. M., & Lawal, F. K. (2017). The effect of firm size on performance of firms in Nigeria. *Aestimatio*, (15), 2.
- Omondi, M. & Muturi, W. (2013). *Factors affecting the financial performance of listed companies at the Nairobi Securities Exchange in Kenya*. *Research Journal of Finance and Accounting*, 4(15), 99-104.
- Omondi, M. M., & Muturi, W. (2013) Factors Affecting the Financial Performance of Listed Companies at the Nairobi Securities Exchange in Kenya *Research Journal of Finance and Accounting*, 4(15). *Operations Management*, 12, 297-310.
- Omorie, A. N., & Erah, D. O. (2010). Capital structure and corporate performance in Nigeria: An empirical investigation. *AAU Journal of Management Sciences*, 1(1), 43-52.
- Onaolapo, A. & Kajola, S. (2010). *Capital structure and firm performance: Evidence from Nigeria*. *European Journal of Economics, Finance and Administrative Sciences*, 25, 70-82.
- Opiyo, J. O. (2012). *The relationship between enterprise risk management practices and financial performance of non-financial firms listed in Nairobi securities exchange* (Doctoral dissertation, University of Nairobi).
- Panzar, R. & Willig M. (1981). Estimating Cost Functions for Rail Rapid Transit Properties.” *Transportation Research* 12(2), 73-78.
- Penrose, E. T. (1959). *The theory of the growth of the firm*. Oxford: Basil Blackwell.
- Perinpanathan, R. (2014). Impact of Financial Leverage on Financial Performance Special Reference to John Keels Holdings PLC Sri Lanka. *Scientific Research Journal (SCRJ)*, 2. (3), 43-52.
- Rwakakamba, M. (2011). *Budget Priorities and Job Creation in a Competitive Regional Market*. *Twaweza: The African Executive*.
- Sanda,(2010).Corporate governance mechanisms and firm financial performance in Nigeria. *Biannual Research Workshop of the AERC, Nairobi, Kenya*, pp 24-29.

- Santomero, A. M. (1997), Commercial bank Risk management: An Analysis of the Process. *Journal of Financial Research*, Vol. 12, 83 - 115;
- Sanyal, P., Mann L. (2010), "The financial structure of startup firms: the role of assets, information and entrepreneur characteristics", Available at: <https://www.bostonfed.org/economic/wp/wp2010/wp1017.pdf> (Accessed on: September 22, 2014)
- Saunders, M., Lewis, P., & Thornhill, A. (2007). Collecting primary data using semi-structured and in-depth interviews. *Research methods for business students*, 310-352.
- Vijayakumar, A. (2011). An empirical study of firm structure and profitability relationship: The case of Indian Automobile firms. *International Journal of Research in Commerce, IT & Management*, 1 (2), 100-101.
- Wang, J. (2012). Outside director composition and corporate performance. Doctoral dissertation. Knoxville: The University of Tennessee.
- Waweru, N. and Kisaka, E.S. (2011). *The effect of enterprise risk management implementation on the value of companies listed in the Nairobi stock exchange*.
- Weru, S.G. (2008). *An assessment of information systems risk management practices: a case of practical action (International)*, Unpublished MBA Project, University of Nairobi
- Wooldridge, J. M. (2003). Cluster-sample methods in applied econometrics. *The American Economic Review*, 93(2), 133-138.