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*Intervening Effect of Profitability on the relationship
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Intervening Effect of Profitability on the relationship between Capital structure and Value of Non-Financial firms listed at the Nairobi Securities Exchange

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Abstract

Capital structure is critical in the determination of the survival and the firm values since it aids in describing how their finances are raised through equity, debt or firms combining equity and debt. It is argued that debt use is beneficial provided that the acquisition rates are favorable and the monies are well utilized. Current research aimed at assessing the influence of profitability on the relationship between capital structure and the value of non- financial firms listed at the NSE. The research was anchored on trade off theory and positivism philosophy. This study utilized panel data of the twenty- nine listed entities. Research relied on secondary data from the published reports which were availed from various websites of the twenty- nine non-financial firms. Collection of data was from 2013 to 2020. Descriptive statistics and inferential statistics were employed. Descriptive statistics was used in the analysis to aid in deep understanding of the specifics of collected data. Prais Winsten Panel regression was utilized in the inferential analysis. The study confirmed that equity ratio and firm value were positively related and statistically significant and the link between debt ratio and value was negative and significant. The study further found no intervention of profitability in the link between capital structure and value. This study supports the need for injecting more money inform of equity instead of relying heavily on borrowed funds. Study further recommends that; entities should avoid very high levels of debt since it exposes them to financial distress.

Keywords: Capital structure, Profitability, Firm value, Nairobi securities exchange

Introduction

Capital structure decisions are critical in the determination of the survival and final values since it helps in describing how their finances are raised through equity, debt or by combining equity and debt. Critical decisions must be taken with an aim of achieving an ideal financing mix due to its pivotal role (Brigham, 2005). Theoretically, capital structure is pivotal in the firms since it influences their profitability and values making it key in any managerial decisions. The value of business entity is critical since shareholders are able to know the worth of their investment at any point in time (Palmer, 2009).

One of the key business goals is profitability. Profitability is one of the key measures of business entities survival since it is able to give a clear indication of how an entity is performing. Profitability is significant

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because entities apply it in establishing how effective and efficient the resources an entity is endowed with have been managed. Profitability is crucial in any entities' setup, it helps in determining the best investment option by the shareholders especially in deciding its continuity. For any business entity to survive in the changing environment, it must evaluate its profits. Profitable business entities have added advantage because they are more preferred by the investors. More investors translates to injection of extra capital which the firms can apply in expanding their entities in future and this enhances future growth (Ogbulu & Emeni, 2019).

According to Njeri and Kagiri (2018), debt levels for non-financial entities at NSE ranged from 30% to 72% for the period 2015 to 2017. Adequate decision making on capital structure ensures improved values due to minimization of the costs incurred by non-financial entities which have the capacity to maximize the profits. According to Bilafif and Ibrahim (2019), non-financial entities at NSE revealed varying signals on their values. It was also confirmed that capital structure is the major determining factor of the final values of the entities, the urge for more investment has motivated the entities to look for sources of funds with debt finance being preferred by listed non-financial entities at NSE (CMA, 2019). Profitability of the entities was confirmed to vary, with some entities reporting losses across different periods. Non-financial entities are free to have any capital structure unlike financial firms which have a unique financial structure. Management of an entity is critical in deciding between equity finance option and debt finance option.

Research Problem

Capital structure assumes a key role since it is connected with the requests of the shareholders who are essential to a firm regarding success or failure (Haugen & Senbet, 1988). However, the link between capital structure and value still remains a puzzle in corporate and academic world to date. In theory, it is expected that good capital structure decisions lead to improved values of the entities, poor capital structure can negatively impact the size of the entities thus reducing their values (Guler, 2018). According to Gibbs (2005), when capital structure decisions are ideal, value of the entities are increased. However, optimal financing mix that guarantees maximum values is still unanswered.

The values of non-financial entities are dependent on several factors, some are controlled by management while others are beyond management control for example the presence of macroeconomic factors. Capital structure is one of critical factors and is of great concern among non-financial entities. The urge to better

their values has led them to massive application of debt as per the Nairobi securities exchange handbook report (CMA, 2019). It is argued that debt use is beneficial provided that the acquisition rates are favorable and the monies are well utilized for example in the acquiring of productive assets which are beneficial to the firms. Non-financial sector has experienced performance and values related issues as evidenced by delisting and collapse of once giant firms in Kenya for example Mumias sugar company ltd, Athi river mining, express Kenya, kenolkobil and deacons ltd. (CMA, 2019).

Conceptually, contradicting results were confirmed. Megawati (2021) confirmed no link between leverage and entity's value and that profitability affects the market value and the association is significant. Barakat and samhan (2018) concluded major findings namely; evidence of direct association between leverage and the entity's value and that profitability affects the market value and the association is significant. Eli (2019) confirmed that debt ratio significantly affected firm's values and the effect was a negative outcome. Profitability was confirmed to have no effect on value. Contextually, the study by Akrama and Nsour (2019) was carried out in Jordan, Isfenti et al (2018) carried out a research in Indonesia and Sambasivam and Ayele (2018) carried out a research in Iran which are developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies. This necessitated the present study aimed at addressing the gaps in answering the question; what is the influence of profitability on the relationship between capital structure and the value of non- financial firms listed at the NSE?

Research Objectives

To determine the effect of profitability on the relationship between capital structure and value of non-financial firms listed at the Nairobi Securities Exchange.

Literature Review

Theoretical Background

The intervening effect of profitability on the link between capital structure and value was grounded on trade off theory and Modigliani and Miller theory. Trade off theory by Myers (1984) asserts that striking the balance of costs and the associated advantages of leverage improves firm's value. Entities tradeoff a number of aspects which includes the exposure to bankruptcy and agency cost against the tax benefit which results from the use of debt. Theory gives managers of non-financial entities a solution to leverage

by determining the optimal debt to employ and also the ideal debt equity ratios in terms of the amounts of equity and also amounts of debt to adopt by their entities with an objective of maximizing the value of the entities. Modigliani and Miller theory (1961) asserts that an entity's value depends on capital structure and this implies that capital structure is relevant which means that when an entity changes its capital structure, it results into changes in cost of capital and ultimately its value. It supports financing by debt since it increases value of entities since application of debt by the entities allows them to pay less in taxes.

Empirical Review

Mixed research findings were evident from the studies done. Megawati (2021) carried out a research in Indonesia aimed at assessing the decisions on leverage and profitability and how they relate to the value of the entities of firms. Analysis concluded; no direct link between leverage and the entity's value and that profitability affects the market value and the association is significant. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies.

Sayed et al (2021) did a research in Indonesia aimed at assessing the association between liquidity, leverage, and profitability and how they relate to the value of the entities. Conclusions from the study include; leverage relates positively with the firm's value and the association is significant, liquidity relates positively with the firm's value and the association is significant and profitability relates positively with the firm's value and the association is significant. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies.

Kaniz and Mohiuddin (2020) did a research in Bangladesh aimed at assessing the association between capital structure and profitability and how they affected the value. Target was firms in Bangladesh in ceramic sector. From the analysis, it was evident that debt ratio significantly affected profitability and the effect was a positive outcome. Profitability was confirmed to have no effect on value. Analysis was conducted in developed economies in ceramic sector. Focus of a single sector (ceramic) limits the extension of study outcome to multi- industry set up.

Eli (2019) did a research in Jordan aimed at assessing the association between capital structure and profitability and how they affected the value. From the analysis, it was evident that debt ratio significantly affected firm's values and the effect was a negative outcome. Profitability was confirmed to have no effect on value. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies.

Akrama and Nsour (2019) did a research in Jordan aimed at assessing the association between capital structure and profitability and how they affected the value. Conclusions from the study include; debt to equity ratio relates positively with the firm's value and the association is significant, return on assets as an indicator of profitability was confirmed to relate positively with the firm's value and the association is significant. Analysis was conducted in developed economies. Focus of a single sector (manufacturing) limits the extension of study outcome to multi- industry set up.

Isfenti et al (2018) did a research in Indonesia aimed at assessing the association between capital structure and profitability and how they affected the value. From the analysis, it was evident that debt ratio significantly affected firm's values and profitability was confirmed to relate positively with the firm's value and the association is significant. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies.

Conceptual Framework

The hypothetical relationship were as presented in figure 1 below

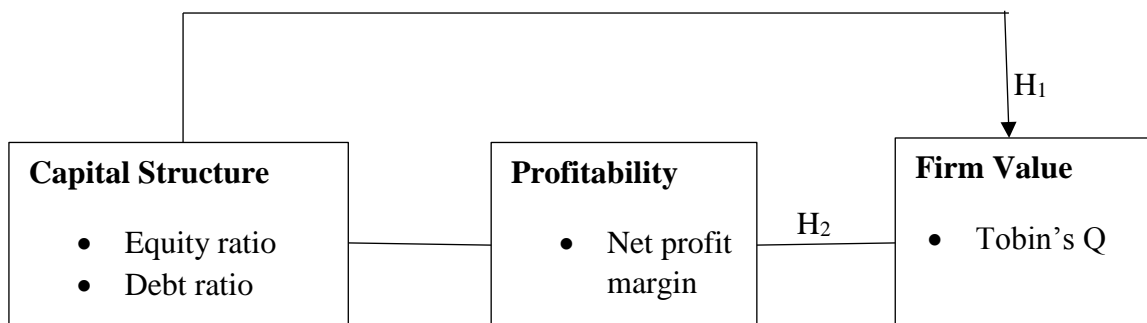


Figure 1: Conceptual Model

Research Hypotheses

H₁: The relationship between capital structure and the value of listed non- financial firms at the Nairobi Securities Exchange is not significant.

H₂: The intervening effect of profitability on the relationship between capital structure and the value of listed non- financial firms at the Nairobi Securities Exchange is not significant.

Research Methodology

This analysis employed longitudinal research design because the researcher used panel data for different firms covering a time span of eight years (8 year data points) from 2013 to 2020. This research design was ideal in summarizing the various variables which were helpful in the determination of the link of the variables. Population of this research consisted non-financial entities at NSE and were forty in number as per the records of 31st December, 2020. This analysis relied on the already published data which was accessed directly from published financial reports which were availed from the NSE handbook. Descriptive statistics was used in the analysis to aid in deep understanding of the specifics of collected data. Correlation was applied as well as regressions. Respective regression models which were used in testing the hypothesis are explained below.

The intervening effect of profitability was determined by Baron and Kenny (1986) model which was applied in testing hypothesis two to ascertain the effect in the following four steps: Step one focussed on ascertaining the link between capital structure which was the predictor variable and value which was the response variable not considering profitability which was the intervening variable. In step two, the focus was to ascertain the link between capital structure and profitability not considering value. Step three focussed on ascertaining the link between profitability and value not considering capital structure and finally step four focussed on ascertaining the joint impact of capital structure and profitability on firm value.

$$\text{Step 1: } FV_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 D_{it} + \varepsilon \dots \dots \dots (3.2)$$

$$\text{Step 2: } P_{it} = \beta_0 + \beta_3 E_{it} + \beta_4 D_{it} + \varepsilon \dots \dots \dots (3.3)$$

$$\text{Step 3: } FV_{it} = \beta_0 + \beta_5 P_{it} + \varepsilon \dots \dots \dots (3.4)$$

$$\text{Step 4: } FV_{it} = \beta_0 + \beta_6 E_{it} + \beta_7 D_{it} + \beta_8 P_{it} + \varepsilon \dots \dots \dots (3.5)$$

Where: P_{it} = profitability, FV_{it} , E_{it} , D_{it} , B_0 , t , β_1 and ε are shown in equation 3.1 above. β_2 , B_8 = regression coefficients.

Results and Discussions

Descriptive Statistics

Descriptive statistics was achieved by employing the measurement of central tendency.

Table 1: Summary Statistics of Study Variables

Variables	Obs	Min	Max	Mean	Std. Dev.	Skewness	Kurtosis
Tobin's Q	226	-2.180	2.790	0.707	0.760	-0.681	2.590
Equity Ratio	226	-0.780	0.970	0.539	0.236	-1.096	3.980
Debt Ratio	226	0.000	0.560	0.136	0.148	0.843	-0.403
Net Profit Margin	226	-1.590	1.360	0.048	0.297	-1.655	9.927

The results of analysis confirmed that the mean value of Tobin's Q which indicated firm value was 0.707, corresponding minimum result was -2.180 and maximum result was 2.790 with the result of standard deviation of 0.760. It meant a moderate variation in terms of values of the entities with some recording negative values and others positive values. Kurtosis and skewness values were confirmed to be 2.590 and -0.681 respectively. Implying distribution was not peaked and data sets were skewed left. The mean value of net profit margin which indicated profitability was 0.048, the corresponding minimum result was -1.590 and maximum result was 1.360 with the value of standard deviation of 0.297. It meant a small variation in terms of profitability of the entities with some reporting losses and others reporting profits. Kurtosis and skewness values were confirmed to be 9.927 and -1.655 respectively. Implying that the distribution had a wider shape and data sets were skewed left.

The mean value of equity ratio which indicated capital structure was 0.539, the corresponding minimum result was -0.780 and corresponding maximum result was 0.970 with the value of standard deviation of 0.236. It was an indication of large variation in terms of financing by owners' equity with some firms having more liabilities than the corresponding assets as indicated by negative equity ratio which is a sign of financial distress of the entities. It meant a larger proportion of assets are not owned by an entity. Kurtosis and skewness values were confirmed to be 3.980 and -1.096 respectively. Implying distribution was not peaked and data sets were skewed left.

The mean value of debt ratio which indicated capital structure was 0.136, the corresponding minimum result was 0.000 and corresponding maximum result was 0.560 with the value of standard deviation of 0.148. It was an indication of a large variation in terms of financing by debt. With zero debt ratio implying that some entities do not finance through borrowing at all. Kurtosis and skewness values were confirmed to be -0.403 and 0.247 respectively. Implying that the distribution had a flat shape and data sets were skewed right.

Correlation Analysis

Table 2: Correlation Matrix

	Tobin's Q	Equity ratio	Debt ratio	Net Profit Margin
Tobin's Q	1			
Equity ratio	0.1075	1		
Debt ratio	-0.1588*	-0.6379*	1	
Net Profit Margin	0.0645	0.2132*	-0.0897	1

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

Table above depicts correlation between firm value which is the response variable as indicated by Tobin's Q and the predictor variable which is capital structure which is operationalized by debt ratio and also equity ratio. Noted from the correlation analysis performed is that; Tobin's Q and equity ratio were positively correlated and the relationship was weak ($r=0.1075$). This means that when equity ratio increases, value also increase and vice versa. Debt ratio and Tobin's Q were negatively correlated and the relationship was weak but significant ($r=-0.1588$). This means that when debt ratio increases, value decreases and vice versa. Noted from the correlation analysis performed is that; Tobin's Q and net profit margin were positively correlated and the relationship was weak ($r=0.0645$). This means that when the profits of the entities increases, value of the entities increase and vice versa.

Table above depicts correlation between capital structure which is the predictor variable which is indicated by equity ratio and debt ratio and the intervening variable which was profitability operationalized by net profit margin. Noted from the correlation analysis performed is that; equity ratio and net profit margin were positively correlated and the relationship was weak but significant ($r=0.2132$). This means that increase in equity ratio increases profitability and vice versa. Equity and debt ratio were confirmed to be negatively correlated and the relationship was strong and significant ($r= -0.6379$). This means that an increase in equity ratio leads to a corresponding decrease in debt ratio and vice versa. A negative correlation was evident

between debt ratio and net profit margin and it was a weak relationship ($r = -0.0897$). This means that high levels of debt potentially reduces profits and vice versa.

Capital Structure and Firm Value

The hypothesis of the study was;

H₁: *The relationship between capital structure and the value of listed non-financial firms at the Nairobi Securities Exchange is not significant.*

Table 3: Effect of Capital Structure on Firm Value

Praise-Winsten regression, heteroskedastic panels corrected standard errors						
Group variable:	id		Number of obs	=		226
Time variable:	Year		Number of groups	=		29
Panels:	heteroskedastic (unbalanced)		Obs per group: min	=		5
Autocorrelation:	Panel-specific AR (1)		avg	=		8
			max	=		8
Estimated covariances =		29	R- squared	=		0.3590
Estimated autocorrelation =		29	Wald chi2(3)	=		15.47
Estimated coefficient =		3	Prob >chi2	=		0.0004
Het-corrected						
Tobin's Q	Coef.	Std error	Z	p>(z)	(95 conf. interval)	
Equity ratio	0.30387	0.1350075	2.25	0.024	0.0392601	0.5684798
Debt ratio	-0.4222997	0.2096522	-2.01	0.044	-0.833210	-0.001138
_Cons	0.6176721	0.0919736	6.72	0.000	0.4374072	0.7979371
rhos =	0.8808334	0.7070879	0.4349776	0.913690	0.0071341	0.8776338

Praise-Winsten regression confirmed the following results; prob chi square value was 0.0004, regression coefficient, standard error, z value and the p values for equity ratio were 0.30387, 0.1350075, 2.25 and 0.024 respectively. Regression coefficient, standard error, z value and p values for debt ratio were -0.4222997, 0.2096522, -2.01 and 0.044 respectively. It was confirmed from the research that capital structure indicators had p values of less than 5% meaning their influence was significant (equity ratio p value=0.024 and debt ratio p value=0.044). Generally it was deduced that, a significant relationship between CS and FV of listed non-financial entities at NSE exist. The analysis resulted into the following linear model;

$$Y = 0.6176721 + 0.30387X_1 - 0.4222997 X_2$$

Where,

Y = Firm Value, X₁ = Equity ratio, X₂ = Debt ratio

The intervening effect of profitability in the relationship between capital structure and value of non-financial firms listed at NSE

H₂: *The intervening effect of profitability in the relationship between capital structure and value of non-financial firms listed at NSE is not significant*

The intervening effect of profitability on the relationship between capital structure and the value of non-financial entities at NSE was determined by Baron and Kenny (1986) model which involved four steps. Step one focused on ascertaining the relationship between capital structure which was the predictor variable and firm value which was the response variable not considering profitability which was the intervener. In step two, the focus was to establish the relationship between capital structure and profitability not considering firm value. Step three focused on ascertaining the link between profitability and value not considering capital structure and finally step four focused on ascertaining combined effect of capital structure and profitability on firm value.

Effect of Capital Structure on firm Value

This was similar to conducting hypothesis one.

Table 4: Effect of Capital Structure on firm Value

Praise-Winsten regression, heteroskedastic panels corrected standard errors						
Group variable:	id		Number of obs	=		226
Time variable:	Year		Number of groups	=		29
Panels:	heteroskedastic (unbalanced)		Obs per group: min	=		5
Autocorrelation:	Panel-specific AR (1)		avg	=		8
			max	=		8
Estimated covariances =		29	R- squared	=		0.3590
Estimated autocorrelation =		29	Wald chi2(3)	=		15.47
Estimated coefficient =		3	Prob >chi2	=		0.0004
	Het-corrected					
Tobin's Q	Coef.	Std error	Z	p>(z)	(95 conf. interval)	
Equity ratio	0.30387	0.1350075	2.25	0.024	0.0392601	0.5684798
Debt ratio	-0.4222997	0.2096522	-2.01	0.044	-0.833210	-0.001138
_Cons	0.6176721	0.0919736	6.72	0.000	0.4374072	0.7979371
rhos =	0.8808334	0.7070879	0.4349776	0.913690	0.0071341	0.8776338

Praise-Winsten regression confirmed the following results; prob chi square value was 0.0004, regression coefficient, standard error, z value and the p values for equity ratio were 0.30387, 0.1350075, 2.25 and 0.024 respectively. Regression coefficient, standard error, z value and p values for debt ratio were -

0.4222997, 0.2096522, -2.01 and 0.044 respectively. It was confirmed from the research that capital structure indicators had p values of less than 5% meaning their influence was significant (equity ratio p value=0.024 and debt ratio p value=0.044). Generally, it was deduced that, there was a significant relationship between CS and FV of listed non-financial firms at NSE.

Effect of Capital Structure on Profitability

In step two, the focus was ascertaining the link between capital structure and profitability not considering value. This involved testing the effect of equity ratio and debt ratios on profitability.

Table 5: Intervening effect of Profitability on the Relationship between Capital Structure and Firm Value

Praise-Winsten regression, heteroskedastic panels corrected standard errors						
Group variable:	id		Number of obs	=		226
Time variable:	Year		Number of groups	=		29
Panels:	heteroskedastic (unbalanced)		Obs per group: min	=		5
Autocorrelation:	Panel-specific AR (1)		avg	=		8
			max	=		8
Estimated covariances =		29	R- squared	=		0.0302
Estimated autocorrelation =		29	Wald chi2(3)	=		5.53
Estimated coefficient =		3	Prob >chi2	=		0.0629
	Het-corrected					
Net profit margin	Coef.	Std error	Z	p>(z)	(95 conf. interval)	
Equity ratio	0.2870378	0.173095	1.66	0.097	-0.052222	0.6262979
Debt ratio	0.0003531	0.2223111	0.00	0.999	-0.435368	0.4360749
_Cons	-0.1651879	0.1144238	-1.44	0.149	-0.389454	0.0590787
rhos =	0.7222143	0.6300229	0.4706012	0.825856	0.8374209	0.8587883

From the results of analysis, the following outcome was confirmed; the p value was confirmed to be 0.0629 implying the overall model was not significant, the R squared value was 0.0302 which was the amount of variance of profitability explained by capital structure. The coefficient of equity ratio was 0.2870378 and was not statistically significant in explaining profitability (p=0.097). The coefficient of debt ratio was 0.0003531 and was not statistically significant in explaining profitability (p=0.999).

Objective number one focused on the determination of the relationship between capital structure and the value of non- financial firms at NSE. The indicators of capital structure were debt ratio and equity ratio. Value was operationalized by Tobin's Q. With the following linear model; Firm Value = 0.6176721+ 0.30387equity ratio -0.4222997debt ratio+e, it was concluded that capital structure significantly affects the

value of the firms. This led to the rejection of the first hypothesis, implying that the mix of equity and debt by the firms has a bearing on their values.

The outcome of this study confirm Bilafif and Ibrahim (2019) findings that, financial leverage positively affects firm value. It further confirmed Chaleeda *et al* (2019) that, the ratio between debt in the short term and long term and the total assets of the entities relates positively with the value of the firm and the association is significant. But this study contradicts the studies by Aras (2017) who confirmed no evidence of direct association between debt to equity ratio and the value of the entities and that inventory turnover did not affect the market value and the association was not significant.

Objective number two focused on the determination of the intervening effect of profitability on the relationship between capital structure and the value of non- financial firms at the NSE. The study confirmed that, profitability does not mediate the relationship between capital structure and value of non-financial firms listed at the NSE. The outcome of this study was inconsistent with the studies by Akrama and Nsour (2019) who concluded that profitability relate positively with the firm's value and the association is significant. Additionally, it contradicts Barakat and Samhan (2018) who confirmed that profitability affects the market value and the association is significant.

Conclusions and Recommendations

This research drew conclusions grounded on the two main objectives. The findings of the study confirmed that, the relationship between equity ratio and firm value was positive and statistically significant and the link between debt ratio and firm value was negative and significant. This led to the conclusion that a significant link exists between capital structure and firm value of non-financial firms listed at the Nairobi Securities Exchange. Study further confirmed that profitability does not mediate the link between capital structure and value of non-financial firms listed at Nairobi Securities Exchange.

This study supports the need for injecting more money inform of equity instead of relying heavily on borrowed funds. Study further recommends that; entities should avoid very high levels of debt since it exposes them to financial distress. Managers of non-financial entities may use the recommendations of this study in developing best capital structure choices which are aimed at improving the value of their entities.

Non-financial firm's managers in Kenya should consider the impact capital structure has on value without being concerned with how profitable their firms are.

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