FIRM CHARACTERISTICS AND FINANCIAL LEVERAGE OF CONSTRUCTION AND ALLIED COMPANIES LISTED IN NAIROBI SECURITIES EXCHANGES

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ABSTRACT

Although financing arrangement is dependent on heterogeneous aspects there is no clarity on how firm financial characteristics influence the financial leverage of construction and allied companies. Thus, the current study examined the influence of asset tangibility, firm size, growth opportunities and profitability on leverage. Further, operating cash flows moderating effect on the influence of firm financial characteristics was examined. It was found that operating cash flows have a significant moderating effect on the influence of firm financial characteristics on the financial leverage of construction and allied companies listed in Nairobi Securities exchanges.

Keywords: Asset Tangibility, Profitability, Growth Opportunities, Firm Size, Operating Cashflows, Leverage.

1.0 INTRODUCTION

Whereas leverage as a source of financing is expected to influence financial management decisions, it is not clear whether and how firm financial characteristics influence leverage decisions of listed at the Nairobi Securities Exchange. This lack of clarity emanates from confounding theoretical and empirical literature. Even though leverage has been adopted by both listed and non-listed companies, there are disparities in the findings of empirical enquiries on the interrelationship between firm financial characteristics and leverage. Empirical findings (Bereznicka, 2013; Olakunle & Oni, 2014; Mahnazmahdavi, et al. 2013) found a positive and significant effect of firm size on financial leverage while (Hussan, 2016; Tai, 2017) reported an inverse effect of firm size on leverage. Hussain, Shahid and Amkal (2016) reported a positive correlation between profitability and leverage. In contrast, Chesang and Ayuma (2016); Addae, Nyarko-Baasi and Hughes (2013) found a significant inverse correlation between profitability and leverage. On growth opportunities, Acheampong et al. (2014) indicated positive relation with leverage while Abdullah, Parvez, Karim and Tooheen (2015) found an inverse significant relationship. Mwangi and Birindu (2015) reported asset turnover and asset tangibility as having an inverse insignificant relationship with leverage while capital structure and profitability had a positive relationship.

There is extensive empirical literature on capital structure globally, regionally and locally, of which these studies have explored factors affecting capital structure (Mwangi, Makau & Kosimbei, 2014). Notable findings are that there is a lack of findings congruence, Mwangi and

Birindu (2015) reported the inverse and significant influence of asset tangibility on financial leverage. Wahome et al. (2015) found a positive and significant relationship between firm size and capital structure among insurance companies in Kenya. They further reported a positive and significant relationship between growth opportunities and leverage.

Chesang and Ayuma (2016) reported an inverse and significant relationship between profitability and leverage for listed agricultural companies at the NSE. Findings by Gathogo and Ragui (2014) reported a positive and insignificant relationship between growth opportunities and leverage for non-listed small and microenterprises in Kenya. Githira and Nasieku (2015) reported a positive insignificant relationship between growth, profitability and firm size and capital structure while asset structure was reported to have an inverse relationship for firms quoted in the East African Securities Exchange. Tarus, Chenous and Biwott (2014) reported inverse significant relation between liquidity and leverage for Kenyan listed firms. Hence, the current study examined the influence of firm financial characteristics on the leverage of listed construction and allied companies in Nairobi Securities Exchanges.

The specific objectives were:

i. To determine the influence of tangibility of assets on the leverage of construction and allied companies listed at the Nairobi Securities Exchange.
ii. To examine the influence of profitability on the leverage of construction and allied companies listed at the Nairobi Securities Exchange.
iii. To establish the influence of firm size on the leverage of construction and allied companies listed at the Nairobi Securities Exchange.
iv. To find out the influence of growth opportunities on the leverage of construction and allied companies listed firms at the Nairobi Securities Exchange.
v. To evaluate the moderating effect of operating cash flows on the influence of firm financial characteristics on the leverage of construction and allied companies listed at the Nairobi Securities Exchange.

2.0 LITERATURE REVIEW

2.1 Market Timing Theory

It was proposed by Baker and Wurgler (2002) and it states that when seeking financing, firms prefer external equity when the cost of equity is low and prefer debt otherwise. The theory supports equity issues timing period and it assumes that companies will always issue equity in bullish and repurchase in the bearish market (Mwangi, 2016; Mostafa & Boregowda, 2014; Luigi & Sorin, 2009). Leverage decisions are mostly dependent in fluctuations of stock prices. Indeed, most of the firm's issue equity when they perceive it to be cheaper than debt financing.

There are two schools of thought in equity market timing theory (Myers & Majluf (1984). One is the dynamic version which supports rational investment behaviour portrayed by both investors and managers and the board of directors and the other perceives investment decisions as being made irrationally (Myers & Majluf, 1984). Barker and Wurgler (2002) brought forth the argument of rationality by evaluating the market-to-book ratio and they reported a significant positive relationship whereby high leverage is characterized high market-to-book ratio. Moreover, equity issue was perceived to signal positive information to members of the

public and consequently minimize the level of information asymmetry. According to Luigi and Sorin (2009), there is an inverse significant relationship between information asymmetry and stock price. Moreover, they posited that the timing is customized to every firm, it is not constant and has an inverse effect on market to book ratio.

Secondly, the theory perceives investment decisions to be made irrationally by both investors and managers. This decision is influenced by timing and is characterized by the mispricing of securities (Mwangi, 2016; Luigi & Sorin, 2009; Baker & Wurgler, 2002). In fact, the market is perceived to be inefficient and does not have a detailed stock evaluation in order to make an investment decision (Luigi & Sorin, 2009). Indeed, market to book ratio evaluation approach is just as avenue for managers to misevaluate investment opportunities (Baker & Wurgler, 2002).

3.0 EMPIRICAL REVIEW

A Nigerian study investigating the relationship between asset structure and capital structure was carried out by Olakunle and Oni (2014). A purposive sampling technique was used to select 20 companies which were listed from 1997 to 2007. Regression analysis showed a positive and significant relationship between asset structure and capital structure. Although the results in different economic set up as compared to Kenya, they negate agency theory and trade-off theory.

Baloch, Ihslan, Kakakhel and Sethi (2013) investigated the impact of firm size, asset tangibility and retained earnings on financial leverage on listed companies in Pakistan. Purposive sampling was used to select 22 companies which were listed in the auto sector. Multiple regression analysis revealed a positive effect of firm size and asset tangibility on financial leverage while retained earnings had inverse effect on financial leverage. These results were in support of both agency theory and pecking order theory.

Badar and Saeed (2013) investigated the impact of capital structure on financial performance of companies listed sugar sector in Pakistan. Purposive sampling was used to select 10 companies which were listed in food sector in 2007 to 2011 at Karachi securities exchange. Multiple regression analysis was used to analyze the data and results of the study revealed positive and insignificant relationship between short term debt and sales turnover. In contrast there was a positive and significant relationship between long term debt and asset turnover. This finding reveals that most of the studies have adopted conservative financing policy and they are mirroring agency theory.

A Chinese case to investigate the relationship between cash flow and financial performance of listed companies was carried out by Hong, Shuting and Meng (2012). Correlation research design was adopted; purposive sampling was used to select real estate companies listed from 2006 to 2010. Data was analyzed using regression analysis. Results of the study revealed inverse and significant relationship between free cash flow and firm performance.

4.0 CONCEPTUAL FRAMEWORK

A conceptual framework is a diagrammatic presentation depicting the relationship between study variables. In this study it was conceptualized that firm financial characteristics

(tangibility of assets, profitability, growth opportunities and firm size) has direct effect on leverage while operating cashflows moderating this relationship. The conceptualized link is as shown in figure 2.1.
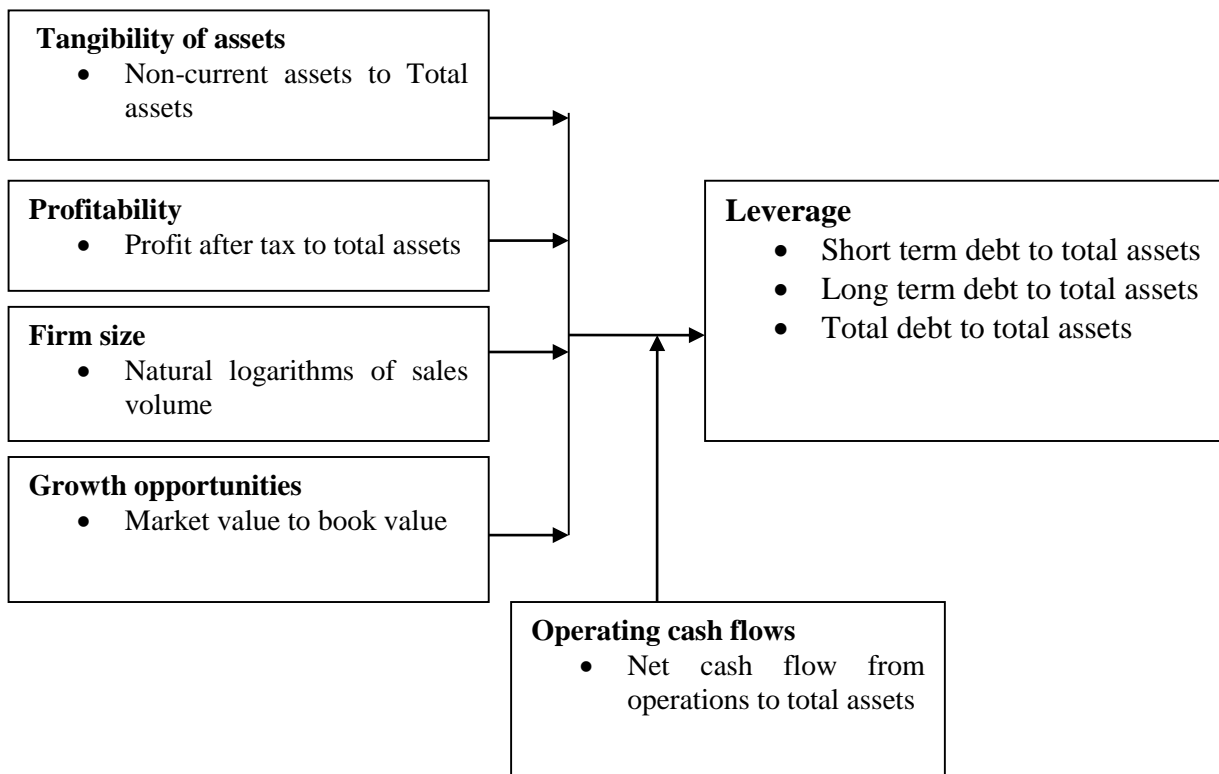

Figure 2.1: Conceptual Framework

5.0 RESEARCH METHODOLOGY

Explanatory research design was used in this study. The choice of the research design was guided by the fact that purpose of this study was not only to describe but also explain the causal effect between the firm financial characteristics and leverage. This is a design that shows the effect and an explanation of causes of such effect between variables (Bryman & Bell, 2011). The study relied on panel data that was retrieved from annual financial statements of listed construction and allied listed companies. The study applied univariate and multivariate statistics for data analysis. Prior to regression modelling several diagnostic tests were carried out to evaluate the robustness of the model. The following regression model without the moderating variable was used for the analysis as proposed by Greene (2008).

$$Lit=\beta 0 + \beta 1Ti, t + \beta 2\ Pi, t+ \beta 3\ Si, t+ \beta 4Gi,t + \mathcal{E}j\ldots\ldots\ldots\ldots\ldots..\ldots\ldots\ldots\ldots\ldots 3.1$$

The following regression model with the moderating variable was used for the analysis (Baron & Kenny, 1986).

$$Lit=\beta 0 + \beta 1Ti,t + \beta 2Pi,t+ \beta 3Si,t+ \beta 4Gi,t + \beta 5CFi,t +\ CFi,t(\beta 6Ti,t+ \beta 7Pi,t+ \beta 8Si,t+ \beta 9Gi,t)+ \mathcal{E}\ j\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..\ldots 3.2$$

Where

Lit - long term liabilities/total assets, short term liabilities/total assets and total liabilities/total assets for each firm i at time t

T = Tangibility of assets, P = Profitability, S = Firm size, G = Growth opportunities, CF = Operating cash flows

βi (i=0,1,2, …., 9) are the associated regression coefficients

$\mathcal{E}j$ is the associated error term.

6.0 FINDINGS AND DISCUSSION

6.1 Descriptive Statistics

As shown in Table 4.1, the average tangibility over the period was 0.60. The minimum value was 0.25, maximum value of 0.97, standard deviation of 0.20 and coefficient of skewness of -0.49. These statistics imply that of the firms' in the construction and allied sector's total assets, more were non-current in nature with only 40% accounting for current assets. The negative skewness further reinforces this fact. This further indicates that were firms required to provide collaterals in terms of non-current assets, they would have been generally sound. The average profit after tax to total assets over the period was 0.07, minimum of -0.17 and maximum of 0.31 with a negative skewness of -0.05. The standard deviation of the profits after tax to assets distribution was 0.08. The average firm size 15.96 with a minimum of 14.13 and maximum of 18.10. Standard deviation was 0.90 and skewness coefficient was 0.49. This implies that there was minimal variation in firm revenue generated.

Average growth opportunities averaged at 1.08, with a maximum of 2.87 and minimum of 0.00. Growth opportunities was positively skewed as indicated by skewness coefficient of 0.45. Companies quoted in this sector supported market timing theory since their rate of market value to book value had minimal variations. Operating cash flows averaged at 0.06, with a maximum of 0.36 and minimum of -0.85. This indicates that on average, from every shilling of revenue generated, approximately six cents went to cover operating expenses with huge chunk left to financing and investing activities. From the findings it can be implied that there was high demand of borrowed financing amongst construction and allied sector quoted companies this can be linked with availability of collateral security. Gathogo and Ragui (2014) found high use of debt among the construction companies. Furthermore, these findings supported trade theory since most firm's assets were non-current, hence could provide collateral needed to support long-term borrowing.

Table 4.1 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
T	45	0.25	0.92	0.60	0.20	-0.49
P	45	-0.17	0.31	0.07	0.08	-0.05
S	45	14.13	18.10	15.96	0.90	0.49

G	45	0.00	2.87	1.08	0.75	0.45
CF	45	-0.85	0.36	0.06	0.24	-2.24
LTA	45	0.00	0.51	0.22	0.15	0.50
STA	45	0.13	0.64	0.31	0.15	0.47
DTA	45	0.24	0.74	0.53	0.14	-0.51

6.2 Diagnostic Tests

6.2.1 Autocorrelation Test

As shown in Table 4.2, models with LTA as the response variable had F statistics of 1092.643, without cash flow moderation, and 4.665 with moderation. With p value less than 0.05 for model without moderation it indicates presence of first order serial correlation and with moderation there was no first order serial correlation. This therefore implies absence of serial correlation. For DTA as response, models with and without moderation and STA as response model with moderation, p values were greater than 0.05 which indicated absence of first order serial correlation.

Table 4.2 Woodridge Test for Construction and Allied Companies Listed in NSE

Dependent variable	Model	F (1, 4)	P value
STA	Without moderator	10.608	0.0312
	With moderator	7.015	0.571
LTA	Without moderator	1092.643	0.000
	With moderator	4.665	0.0969
DTA	Without moderator	7.478	0.522
	With moderator	8.355	0.445

6.3 Multicollinearity Test

Table 4.2 presents the VIFs for the various study variables. There was no multicollinearity amongst independent variables since VIFs were less than 5 (Gujarati, 2003).

Table 4.2 Multicollinearity Test

Variable	VIF	1/VIF
S	1.94	0.514359
T	1.9	0.526636
P	1.31	0.763359
G	1.61	0.619823
CF	1.59	0.630805
Mean VIF	1.67	

6.4 Heteroskedasticty Test

Table 4.3 shows the likelihood ratio tests statistics for construction and allied companies listed in NSE. The null hypotheses of the tests were that the error variance was homoscedastic for

each model. The likelihood-ratio tests produced chi-square values of 120.27, 42.54 and 40.13 with p-values of 0.0000. This implies that the test was significant at 5% level of significance hence the existence of heteroscedasticity in the study. To remedy the problem, FGLS estimation technique was used (Wooldridge, 2002).

Table 4.3 Heteroskedasticty Test

Response Variable's models	Chi Square	Degree of freedom	P value
STA	120.27	5	0.00
LTA	42.54	5	0.00
DTA	40.13	5	0.00

6.5 Stationarity Test

The unit root test statistics for companies listed in construction and allied sector in NSE are presented in Table 4.4. From the table, it is evident that all variables are stationary at level since the null hypothesis that all variables are not stationary at 5% significant level is rejected. This is further assurance on the robustness of the expected results. Further on, there was no need to difference the data.

Table 4.4 Stationarity Test

Variable		Statistic	Value	p-value
T	Inverse chi-squared	P	27.8663	0.000
	Inverse normal	Z	2.9249	0.000
	Inverse logit t	L*	1.0055	0.000
	Modified inv. chi-squared	Pm	-0.4771	0.000
P	Inverse chi-squared	P	20.0815	0.000
	Inverse normal	Z	-3.6915	0.000
	Inverse logit t	L*	-1.7141	0.000
	Modified inv. chi-squared	Pm	2.2543	0.000
S	Inverse chi-squared	P	41.2399	0.000
	Inverse normal	Z	4.164	0.000
	Inverse logit t	L*	5.2212	0.000
	Modified inv. chi-squared	Pm	0.2772	0.000
G	Inverse chi-squared	P	18.7711	0.000
	Inverse normal	Z	-1.5833	0.000
	Inverse logit t	L*	-1.7593	0.000
	Modified inv. chi-squared	Pm	21.9613	0.000
CF	Inverse chi-squared	P	9.2251	0.000
	Inverse normal	Z	3.4145	0.000
	Inverse logit t	L*	1.7452	0.000
	Modified inv. chi-squared	Pm	-0.1733	0.000

6.7 Hausman Test

As shown in Tables 4.5 for LTA and DTA models with and without with the moderator and STA without moderation, the nulls were rejected at 5% risk level since the p values were 0.00 respectively. This implies that fixed effects models were preferred. Hence the most appropriate models for them were random effects (Greene, 2008). The STA model without moderator p value was 0.100 thus the null hypothesis failed to be rejected since the p values greater than the 5% significance level.

Table 4.5 Hausman Test

Dependent variable	Model	Chi Square	df	P value
STA	Without moderator	26.67	4	0.000
	With moderator	7.78	9	0.100
LTA	Without moderator	18.2	4	0.001
	With moderator	16.25	9	0.003
DTA	Without moderator	20.07	4	0.001
	With moderator	14.13	9	0.007

6.8 Normality Test

As shown in Table 4.6, the Shapiro-Wilk results for all regression models (moderated or not) had a Z of 0.077 and a p value of 0.46943. The null hypothesis that residuals are normally distributed was not rejected at 5% level of significance. Thus, non-robust standard errors were adopted while fitting regression model (Elliott & Woodward, 2007).

Table 4.6 Normality Test

Variable	Obs.	W	V	Z	Prob>z
R	45	0.97606	1.037	0.077	0.46943

6.9 Granger Causality Test

As shown in Table 4.7, the p-values for all lagged firm financial characteristics in isolation values and DTA, run against DTA, are greater than 5% level of significance. This implies that the null hypotheses that individual firm financial characteristic does not granger causes leverage is not rejected for construction and allied listed companies. When all lagged values of financial characteristics and DTA were run against DTA at the same time, the p value was zero. Being less than 5% level of significance, it means that the null hypothesis that financial characteristics does not granger causes leverage is rejected. It means that financial characteristics of a firm, as a combination but not in isolation, can explain its leverage. When the lagged values of DTA and individual firm financial characteristic were run against individual firm financial characteristics values at the same time, the p value for S, T, P and G were greater than 5% level of significance.

Table 4.7 Granger Causality Test

Dependent	Independent (Lagged)	F Statistic	P value
STA	S,STA	2.31	0.2365
	T,STA	1.78	0.1908

	P,STA	1.57	0.3612
	G,STA	2.31	0.2366
	S,T,P,G,STA	18.23	0.0000
S	STA,S	2.1	0.7815
T	STA,T	6.7	0.5613
P	STA,P	1.23	0.3612
G	STA,G	1.36	0.3261
LTA	S,LTA	1.26	0.2631
	T,LTA	1.56	0.2636
	P,LTA	1.45	0.3215
	G,LTA	1.32	0.2541
	S,T,P,G,LTA	16.85	0.0000
S	DTA,S	0.21	0.8156
T	DTA,T	0.67	0.56167
P	DTA,P	1.18	0.0583
G	DTA,G	1.39	0.2654
DTA	S,DTA	1.68	0.2075
	T,DTA	1.68	0.1872
	P,DTA	1.37	0.2649
	G,DTA	1.32	0.2799
	S,T,P,G,DTA	15.68	0.0000
S	DTA,S	0.21	0.8156
T	DTA,T	0.67	0.56167
P	DTA,P	1.18	0.0583
G	DTA,G	1.39	0.2654

6.10 Correlation Analysis on Influence of FFC on Leverage

As shown in Table 4.8, there was positive and significant influence of tangibility and total debt and short-term debt (rho = 0.325, p value <0.05) and (rho = 0.381, p value <0.05), tangibility had negative and significant influence on long term debt (rho = -0.595, p value <0.05) among construction and allied companies listed in NSE. Secondly, there was positive and significant influence of profitability on total debt (rho = 0.301, p value <0.05), profitability had negative and no significant influence on long term debt and short-term debt (rho = -0.245, p value >0.05) and (rho = -0.145, p value >0.05). Thirdly, there was there was positive and significant influence of firm size on total debt (rho = 0.355, p value < 0.05), negative and significant influence of firm size on long term debt and short term (rho = -.397, p value < 0.05) and (rho = -0.488, p value < 0.05) respectively.

Growth opportunities had positive significant influence on total debt (rho = 0.347, p value <0.05) and it had negative significant influence on long term debt and short-term debt (rho = -0.364, p value < 0.05) and (rho = -0.370, p value < 0.05) respectively. Operating cash flows had positive and negative insignificant influence on total debt and short-term debt (rho = 0.118, p value > 0.05) and (rho = -0.193, p value > 0.05) respectively. The study confirmed Thippayana (2014) who reported positive contribution of firm size, profitability, growth

opportunities and leverage. These results concurred with pecking order theory and trade off theory. The study contrasted Harc (2015) who documented inverse effect of firm size on leverage.

Table 4.8 Correlation Analysis on Influence of FFC on Leverage

		DTA	LTA	STA	T	P	S	G	CF
DTA	Rho	1							
LTA	Rho	-.543**	1						
	P value	0.00							
	N	45	45						
STA	Rho	-0.017	0.051	1					
	P value	0.911	0.739						
	N	45	45	45					
T	Rho	.325*	-.595**	.381**	1				
	P value	0.029	0.000	0.01					
	N	45	45	45	45				
P	Rho	.301*	-0.245	-0.145	.489**	1			
	P value	0.044	0.105	0.343	0.001				
	N	45	45	45	45	45			
S	Rho	.355*	-.397**	-.488**	-0.004	0.159	1		
	P value	0.017	0.007	0.001	0.977	0.297			
	N	45	45	45	45	45	45		
G	Rho	.347*	-.364*	-.370*	0.047	0.157	.182**	1	
	P value	0.02	0.014	0.012	0.761	0.304	0		
	N	45	45	45	45	45	45	45	
CF	Rho	0.118	-.415**	-0.193	.407**	.333*	.321*	0.272	1
	P value	0.442	0.005	0.204	0.006	0.025	0.032	0.071	
	N	45	45	45	45	45	45	45	45

FGLS Regression Results of STA as Dependent Variable with and Without Moderator for Construction and Allied Listed Companies in NSE

As shown in Table 4.9, results on the effect of financial characteristics on short term debt financing for construction and allied listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was 0.033 hence firm size had a positive influence on short term debt financing when the operating cash flow was incorporated. The p value was 0.499 which is greater than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically insignificant on short term debt financing. The coefficient of TCF was 0.281 hence tangibility had a positive effect on short term debt as operating cash flow increased. The p value was 0.311 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically insignificant on debt financing.

The coefficients of PCF and GCF were -0.268 and -0.027 respectively. This indicates that profitability and growth opportunities had a negative influence on short debt respectively when

operating cash flow was incorporated. The p values were 0.34 and 0.319 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant respectively on short debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on short term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much short-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -0.718 + 0.281*0.06 = -0.702$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = -0.03261 - 0.26763*0.06 = -0.049$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF = -0.050 - 0.033*0.06 = -0.052$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.005723 - 0.02711*0.06 = 0.0041$$

Comparison between moderated and non-moderated variables revealed difference, this indicated that operating cash flow has a moderating influence on the influence of firm financial characteristics and short-term leverage of listed construction and allied companies in Nairobi securities exchange. Resultant models with and without moderation will be as follows:

STA = 1.744 - 0.462*T - 0.345*P - 0.072*S +0.106*G ………………………………4.1

STA = 1.559 – 0.718*T - 0.033*P - 0.050*S + 0.006*G – 1.062*CF + 0.281*TCF -0.268*PCF + 0.033*SCF - 0.027*GCF……………………………………………….4.2

Table 4.9 FGLS Regression Results of STA as Dependent Variable with and without Moderator for Construction and Allied Listed Companies in NSE

Variable	Without Moderation				With Moderation			
	Coefficient	Std. Error	Z	p>z	Coefficient	Std. Error	Z	p>z
Cons	1.744	.203	8.60	.000	1.559	.171	9.14	.000
T	-.462	.066	-6.99	0.000	-.718	0.056	-13.03	.00
P	-.345	.145	-2.38	.017	-.033	.050	-.65	-.515
S	-.072	.015	-4.93	.000	-.050	.012	-4.17	.00
G	0.106	.019	.57	.571	.006	.008	.73	.464
CF					-1.062	.682	-1.56	.119
TCF					.281	.277	1.01	.311

PCF				-.268	.281	-.95	.34
SCF				.033	.048	.68	.499
GCF				-.027	.027	-1	.319
	Wald chi2 (4) =224.54	R2 = 0.7962	P > Chi2 0.00	Wald chi^2 (9) =760.99	R^2 = 0.9576		P > Chi^2 .0000

FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Construction and Allied Companies Listed in NSE

As shown in Table 4.10, results on the effect of financial characteristics on short term debt financing for construction and allied listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.292 hence firm size had a negative influence on long term debt financing when the operating cash flow was incorporated. The p value was 0.00 which is less than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically significant on long term debt financing. The coefficient of TCF was 1.99 hence tangibility had a positive influence on long term debt as operating cash flow increased. The p value was 0.00 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically significant on long-debt financing.

The coefficients of PCF and GCF were 0.942 and 0.030 respectively. This indicates that profitability and growth opportunities had a positive influence on long term debt respectively when operating cash flow was incorporated. The p values were 0.096 and 0.677 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant respectively on long debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on long term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much long-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = 0.586 + 1.986*0.06 = 0.7050$$

$$\frac{\partial STAit}{\partial Sit} = \beta_2 + \beta_7 CF = 0.198 + 0.942*0.06 = -0.1412$$

$$\frac{\partial STAit}{\partial Pit} = \beta_3 + \beta_8 CF = --0.03 - 0.292*0.06 = -0.047$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.022 + 0.030*0.06 = 0.0235$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating influence on the influence of firm financial characteristics on long term leverage of listed construction and allied companies in Nairobi securities exchange. Resultant models with and without moderation will be as follows:

$$LTA = 0.495 + 0.600*T - 0.145*P - 0.042*S + 0.021*G \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 4.3$$

$$LTA = 0.375 + 0.586*T - 0.198*P - 0.03*S + 0.022*G + 3.329*CF + 1.99*TCF + 0.942*PCF - 0.292*SCF + 0.03*GCF\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 4.4$$

Table 4.10 FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Construction and Allied Firms Listed in NSE

Variable	Without Moderation				With Moderation			
	Coefficient	Std. Error	Z	p>z	Coefficient	Std. Error	Z	p>z
cons	.495	.179	2.76	.006	.375	.355	1.06	.29
T	.600	.053	11.34	.000	.586	.071	8.28	.000
P	-.145	.148	-.98	.328	-.198	.105	-1.88	.06
S	-.042	.013	-3.22	.001	-.03	.024	-1.23	.219
G	.021	.016	1.28	.202	.022	.019	1.17	.24
CF					3.329	1.34	2.49	.013
TCF					1.99	.367	5.41	.000
PCF					.942	.566	1.66	.096
SCF					-.292	.093	-3.13	.000
GCF					.03	.071	.42	.677
	Wald chi^2 (4) =151.46	R^2 = 0.6872		P > Chi^2 0.00	Wald chi^2(9) = 232.69	R^2 = 0.8209		p>Chi^2 .0000

FGLS Regression Results of DTA as Dependent Variable with and without Moderator in Construction and Allied Companies Listed in NSE

As shown in Table 4.11, results on the effect of financial characteristics on debt financing for construction and allied listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.231 hence firm size had a negative influence on debt financing when the operating cash flow was incorporated. The p value was 0.030 which is less than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically significant on debt financing. The coefficient of TCF was 1.854 hence tangibility had a positive influence on term debt as operating cash flow increased. The p value was 0.000 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically significant on debt financing.

The coefficients of PCF and GCF were 0.539 and -0.014 respectively. This indicates that profitability and growth opportunities had a positive and a negative influence on long term debt

respectively when operating cash flow was incorporated. The p values were 0.374 and 0.863 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant respectively on debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows

$$\frac{\partial STAit}{\partial Sit} = \beta_1 + \beta_6 CF = -0.080 - 0.231*0.06 = 0.066$$

$$\frac{\partial STAit}{\partial Pit} = \beta_3 + \beta_8 CF = -0.277 + 0.539*0.06 = -0.2445$$

$$\frac{\partial STAit}{\partial Tit} = \beta_2 + \beta_7 CF = -0.085 + 1.854*06 = 0.026$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.028 - 0.014*0.06 = 0.0274$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating effect on the influence of firm financial characteristics on leverage of listed construction and allied firms in NSE. Resultant models with and without moderation will be as follows:

DTA = 2.278 + 0.206*T - 0.644*P - 0.118*S +0.038*G ………………….…………4.5

DTA = 1.895 - 0.085*T - 0.277*P - 0.08*S + 0.028*G + 2.163*CF +1.854*TCF +0.539*PCF - 0.231*SCF -0.014*GCF……………………………………………….…..4.6

Table 4.11 FGLS Regression Results of DTA as Dependent Variable with Moderator in Construction and Allied Firms Listed in NSE

Variable	Without Moderation				With Moderation			
	Coefficient	Std. Error	Z	p>z	Coefficient	Std. Error	Z	p>z
cons	2.278	.275	8.29	.000	1.895	.383	4.95	.000
T	.206	.078	2.63	.009	-.085	.10	-.86	.39
P	-.644	.137	-4.69	0.00	-.277	.101	-2.72	.007
S	-.118	.020	-6.02	.000	-.08	.027	-3	.003
G	.038	.022	1.73	8.29	.028	.021	1.34	.179
CF					2.163	1.506	1.44	.151

TCF				1.854	.453	4.09	.000
PCF				.539	.607	.89	.374
SCF				-.231	.106	-2.18	.030
GCF				-.014	.082	-.17	.863
	Wald chi^2 (4) =100.45	R^2 = 0.6038		P > Chi^2 0.00	Wald chi^2(9) = 196.19	R^2 = 0.5579	p>Chi^2 .0000

7.0 CONCLUSION AND RECOMMENDATIONS

The study found a significant effect of tangibility of asset on short term debts to total assets and on long-term debts to total assets of listed non-financial listed companies. There was a significant influence of tangibility of assets on total debt to total assets of listed non-financial firms listed at NSE. The study revealed a significant influence of profitability on short term to total assets. This implies that an increase in profitability was associated with an increase in short term debt. This depicts that most of non-financial listed companies increases their current liabilities with increase in profitability. There was insignificant influence of profitability on long term to total assets. Further, there was an insignificant influence of profitability on total debt to total assets. These findings agreed with pecking order theory whereby huge profits increases retained earnings.

The study found a significant relationship between firm size and short-term debt to total assets. This implies that an increase in firm size (sales growth) increases current liabilities within an accounting cycle. This is a clear indication of an adoption of aggressive working capital strategy. There was a significant influence of firm size on long-term debt to total assets. There was a significant influence of firm size on total debt to total assets. These findings mirrored pecking order theory which purports that there is a significant relationship between firm size and use of leverage.

The study found that growth opportunities had an insignificant influence on short term debt to total assets. There was an insignificant effect of growth opportunities on long term debt to total assets. There was an insignificant effect of growth opportunities on total debt to total assets of listed non-financial companies in NSE. These findings were in conformity with pecking order theory implying that listed companies in aggressive expansion phase are not dependent on borrowed capital. Moreover, the findings cemented trade off theory which supported inverse relationship between leverage and growth opportunities.

Results of the study revealed that operating cash flows had an insignificant moderating effect on short term debt of listed non-financial firms in NSE. There an insignificant moderating effect of operating cash flows on long term debt to total assets. Operating cash flows had an insignificant moderating effect on leverage of listed non-financial companies in NSE.

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