Influence of Firm Financial Characteristics on Leverage of Manufacturing Firms Listed Companies in Nairobi Securities Exchanges

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Abstract

Securities exchanges have greater roles to play in regard to economic and social development in both developed and developing economies. Hence, this paper examined the influence of firm financial characteristics on the leverage of manufacturing listed companies in Nairobi securities exchange. Panel data was collected from annual financial statements and panel regression modelling was adopted to analyze the data. Operating cash flows had a significant moderating effect on the influence of firm financial characteristics on the leverage of manufacturing listed firms in Nairobi securities exchange.

Key Words: Financial characteristics, Firm size, Profitability, Tangibility, Growth opportunities

Introduction

Securities exchanges have greater roles to play in regard to economic and social development in both developed and developing economies (Padaya, 2016). They are supposed to act as a medium through which both deficit and surplus financial units are able to raise finances to fund their growth opportunities, provide currency market, facilitate public and private investment and provide debt funding platform (Mwangi, 2016).

Although African bond and equity markets are still underdeveloped as compared to European, American, Asian and Australian securities markets, there is need to improve on liquidity which is hindering the development (Association of Securities Exchange in Africa, ASEA, 2014). Despite the hurdles facing securities markets, there are recorded changes in combined value of total equities and bonds traded from US$454 974.4 million in equities and US$ 2080.6 billion in bonds in 2013 to $325.0 billion in equities, $1.2 trillion in bonds in 2015, and $438.0 billion in electronic transfer finds and others, representing a market capitalization of over $1.3 trillion (ASEA, 2015), This has improved capital access within developing economies (ASEA, 2015).

Leverage refers to the proportion of debt to equity in the capital structure of a firm. There are two types of leverage; financial leverage which is defined as the use of debt financing by the firms and operational leverage. Following Harc (2015) the operational definition for purposes of measuring leverage in this study is calculated as the ratio of long-term debt to total assets and total debt to total assets. Indeed, (Ezeoha, 2008; Mwangi, 2016) used a similar definition. Bandyopadhyay & Barua (2016) used similar measures in India.

Long term debt is a portion of debt financed in more than one accounting cycle and short term is paid back within a single accounting period (Mwangi, 2016). Long term debt is also referred to as non-current liabilities and is at times preferred by firms since it gives them time to make profits to indemnify it or pay immediate expenses like research and development for start-up businesses. A firm which is highly indebted, whether by short or long term, is likely to suffer distress.

Moreover, empirical findings (Strebulaev & Yang, 2006; Shubita & Alsawalhah, 2012) show that firms' exposure to financial risk is linked to their inability to service loans as per their contractual agreement. If this is prolonged, the firm could eventually be faced with financial distress, erosion of the equity and subsequently winding up (Madan, 2007). Consequently, the current study sought to:

i. To determine the influence of tangibility of assets on the leverage of manufacturing firms listed at Nairobi Securities Exchange.
ii. To find out the influence of growth opportunities on the leverage of manufacturing firms listed at Nairobi Securities Exchange.
iii. To establish the influence of firm size on the leverage of manufacturing firms listed at Nairobi Securities Exchange.

iv.   To examine the influence of profitability on the leverage of manufacturing firms listed at Nairobi Securities Exchange.

v.   To evaluate the moderating effect of operating cash flows on the influence of financial characteristics on the leverage of manufacturing firms listed at Nairobi Securities Exchange.
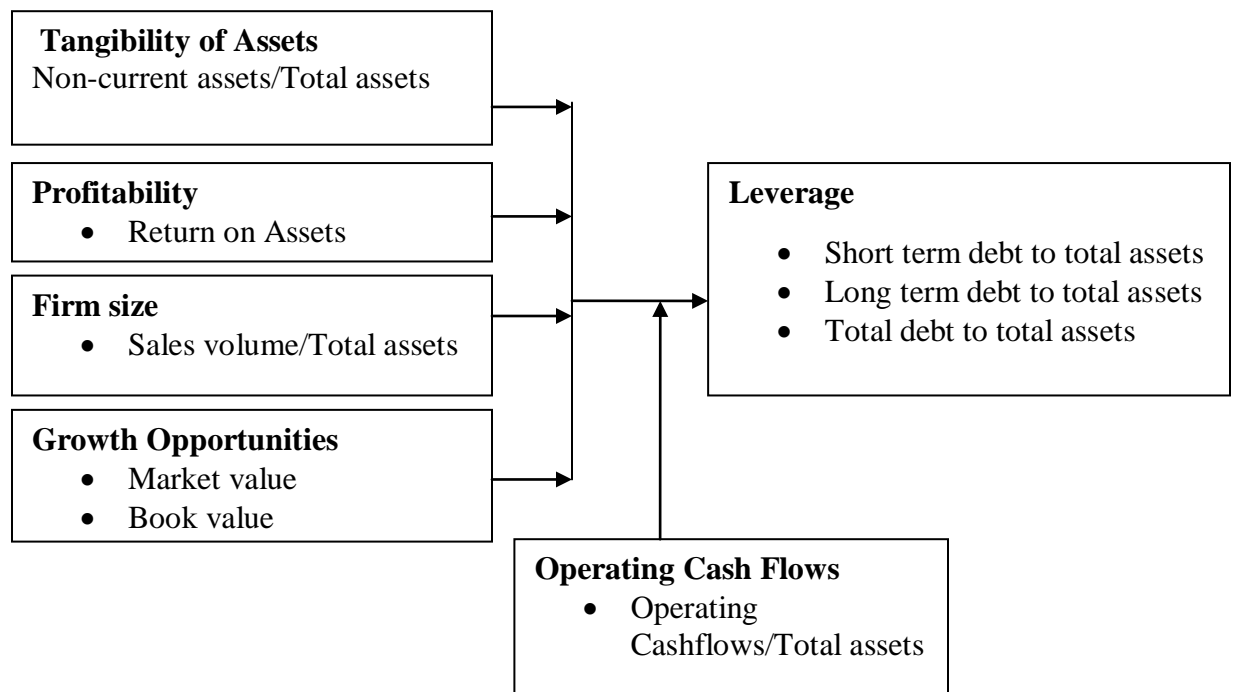
Literature Review

Pecking order theory was brought forth by Myers (1984) and it stipulates that there is always a financing pattern which is followed commencing from internal financing, debt financing and final issue of external equity. According to Donaldson (1961), internal equity is more preferred because an organization always wishes to minimize flotation costs which are associated with external financing. The preference for external finance rather than issue new equity is based on the fact that issue of new debt attracts lower flotation costs compared to the later (Myers, 1984; Myers & Majluf, 1984).

A UK case which drew 3500 unquoted small and medium enterprises (SMEs) by Hall *et al.* (2000) revealed inverse and significant relationship between profitability and short-term debt financing. Moreover, the age of the firm had an influence on leverage decision whereby older and young firms had a negative influence on financing decision. In a subsequent study by Hall *et al.* (2004), it was asserted that leverage decision is dependent on firm's ability to generate more revenue, therefore, those which were generating more they had lower chances of borrowing. According to Myers (2001) those companies which have the potential of making huge revenue they will rely more on internally generated resources to finance their financial needs.

A comparative analysis between static trade-off theory and pecking order model by Shyam-Sunder and Myers (1999) argued that the pecking order theory has a superior influence on firms financing decision. Further, Frank and Goyal (2003) reported a positive and significant relationship between tangible security and leverage decision since assets can be used as collateral security. Moreover, an Australian case which considered SMEs revealed superiority of pecking order financing as compared to static trade off theory.

Although some empirical inquiries had supported the superiority of pecking order model, Fama and French (2002) supported an inverse relationship between profitability and leverage but disclaimed the findings because; increased profitability can signal investment opportunities and there are chances of increased fixed cost. Indeed, whenever a firm generates more revenue it is easier to offset the debt. In contrast, a study by Fama and French (2005) revealed that most of the firms which were listed in 1973-2002 violated the applicability of pecking order financing model and opted for equity financing. In fact, Frank and Goyal (2003) proved that in America it is not possible for listed companies to fully satisfy their financing needs and they opt for debt financing to meet financing speed.

There is a preference for equity financing against debt financing since the level of information asymmetry associated with debt financing is higher as compared to equity financing (Fama & French, 2005). Indeed, firms have recently opted for employees to share ownership schemes and right issues. This is to minimize the possibility of ownership structure changes. Mwangi (2016) argued that there are low chances of breaching information grip while issuing new shares or rights issues as compared to debt financing which may attract binding covenant. The theory is appropriate for the study since the study seeks to examine the moderating of operating cash flow on the influence of firm characteristics on leverage decision. From the foregoing literature review, the following relationship was conceptualized.

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┌─────────────────────────────────────┐
│  Tangibility of Assets              │
│ Non-current assets/Total assets     │
│                                     │
└─────────────────────────────────────┘

┌─────────────────────────────────────┐          ┌──────────────────────────────────────┐
│ Profitability                       │          │ Leverage                             │
│    • Return on Assets               │          │                                      │
│                                     │          │    • Short term debt to total assets │
└─────────────────────────────────────┘          │    • Long term debt to total assets  │
                                                  │    • Total debt to total assets      │
┌─────────────────────────────────────┐          │                                      │
│ Firm size                           │          └──────────────────────────────────────┘
│    • Sales volume/Total assets      │
│                                     │
└─────────────────────────────────────┘

┌─────────────────────────────────────┐
│ Growth Opportunities                │
│    • Market value                   │
│    • Book value                     │       ┌──────────────────────────────────────┐
└─────────────────────────────────────┘       │ Operating Cash Flows                 │
                                               │    • Operating                       │
                                               │      Cashflows/Total assets          │
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Methodology

The study used panel data. Panel data is a series of multidimensional data where the behaviour of entities are observed over time (Wooldridge, 2002). The key advantage of panel data is the ability to allow the researcher to control for variables that are not observable or measurable like culture and management practices over time but not across entities (Wooldridge, 2002). It was obtained from the NSE handbooks and from specific companies' websites. As shown in the data collection sheet data on non-current assets, market prices, book value, turnover, total liabilities, profit after tax, operating cash flows were gathered. Secondary data was collected for period 2008-2016. Univariate and multivariate techniques were applied for data analysis. The influence was tested through the use of regression analysis and moderation was examined through an examination of marginal changes of slope coefficients due to the introduction of operating cash flows. The general models were of the form:

$$L_{it} = \beta_0 + \beta_1 T_{i,t} + \beta_2 S_{i,t} + \beta_3 G_{i,t} + \beta_4 P_{i,t} + \varepsilon_j \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{Model 1}$$

The following regression model with the moderating variable was used for the analysis as proposed by Baron and Kenny (1986).

$$L_{it} = \beta_0 + \beta_1 T_{i,t} + \beta_2 S_{i,t} + \beta_3 G_{i,t} + \beta_4 P_{i,t} + \beta_5 CF_{i,t} + CF_{i,t}(\beta_6 T_{i,t} + \beta_7 S_{i,t} + \beta_8 G_{i,t} + \beta_9 P_{i,t}) + \varepsilon_j \ldots\ldots\ldots \text{Model 2}$$

Where

L_{it} – Short term liabilities to total assets, long term liabilities to total assets, total liabilities/total assets for each firm i at time t

T= Tangibility of assets, G=Growth opportunities, S=Firm size, P= Profitability, CF=Operating cash flows, β_i (i=0,1,2,…9) are the associated regression coefficients, ε_j is the associated error term.

Findings and Discussions
Descriptive Statistics for Manufacturing and Allied

As shown in Table 1, the average tangibility amongst listed manufacturing companies in NSE was 0.55, with a minimum of 0.27 and a maximum of 0.93. Most companies in manufacturing and the allied sector had a high portion of non-current assets and 45% in current assets. There were minimal variations in asset tangibility as indicated by the standard deviation of 0.15. A coefficient of skewness of 0.16 revealed that most companies had high proportions in non-current assets. This implies that they may have enough collateral security to access debt

capital. The profitability of manufacturing companies was 14%, with a minimum of -50% and a maximum of 105%. Most companies were profitable with the period under consideration as accounted for by coefficient of skewness of 1.86. This implies that there may be minimal reliance on debt capital amongst manufacturing if they were to rely on internally generated finances.

The average growth opportunity amongst manufacturing firms was 1.78, with a minimum of 0.00 and maximum of 8.13. There were wide variations in growth opportunities as indicated by the standard deviation of 2. Moreover, most companies were positively skewed as accounted for by 1.53. These findings contrasted the market timing theory. The average operating cash flows to total assets was 0.21, with a minimum of -2.01 and maximum of 1.31. These findings were negatively skewed as accounted by the skewness coefficient of -1.47. There is a need for manufacturing companies to evaluate their working capital operating cycle so as to optimize benefits associated with prudent working capital management.

There was a high dependency on long term debt as accounted for by an average of 0.18 and a maximum of 1.13. The positive coefficient of skewness of 2.59 revealed that most firms highly financed their assets using long term debt. High dependency on long term debt financing can be attributed to the availability of collateral security. The average short-term debt to total assets was 0.28, with a maximum of 0.67 and a minimum of 0.03. Negative skewness of -0.03 revealed that had a low reliance on short term debt finance and those who relied had a minimal variation on its application as indicated by the standard deviation of 0.14. This implies that most manufacturing companies listed in NSE had adopted conservative working capital management. The average reliance of total debt to total assets was 0.46, with a minimum of 0.13 and a maximum of 1.45. From the findings, it can be deduced that some firms had borrowed debts which exceeded their assets requirements this would pose a threat to their business operations, especially in situations when they needed to borrow more capital whose access would be curtailed by lack of collateral security.

Table 1 Manufacturing and Allied Sector Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
T	56	0.27	0.93	0.55	0.15	0.16	0.32
P	56	-0.50	1.05	0.14	0.22	1.86	0.32
S	56	12.87	17.98	15.94	1.62	-0.46	0.32
G	56	0.00	8.13	1.78	2.00	1.53	0.32
CF	56	-2.01	1.31	0.21	0.52	-1.47	0.32
LTA	56	0.00	1.13	0.18	0.20	2.59	0.32
STA	56	0.03	0.67	0.28	0.14	-0.03	0.32
DTA	56	0.13	1.45	0.46	0.27	1.28	0.32

Panel Diagnostic Tests
Autocorrelation Test for Manufacturing and Allied Companies Listed in Nairobi Securities Exchange
As shown in Table 2, models with LTA as the response variable had F statistics of 13.41, without cash flow moderation, and 9.169 with moderation. The p values for both were less than 0.05. The test statistics were therefore significant in all cases at a 5% level of significance to indicate the presence of first order serial correlation in the data. The model without moderation where STA is the response variable had an F statistic of 67.275 with a p value of 0.0002 and model with moderation had an F statistic of 9.569 and p value of 0.0213 to indicate significance at 5% significance level. This implied presence of first order serial correlation. For the DTA response variable models, the F statistics were 63.325 and 102.48 with p values of 0.0002 and 0.0001 without and with moderation respectively. This, therefore, implies the presence of serial correlation. With the presence of the first order, serial correlation FGLS models were fitted.

Table 2 Woodridge Test for Manufacturing and Allied Companies Listed in Nairobi Securities Exchange

Dependent variable	Model	F (1,6)	P value
LTA	Without moderator	13.41	0.0106
	With moderator	9.169	0.0232
STA	Without moderator	67.275	0.0002
	With moderator	9.569	0.0213
DTA	Without moderator	63.325	0.0002
	With moderator	102.48	0.0001

Multicollinearity Test Statistics for Manufacturing Listed Companies in Nairobi Securities Exchange

Table 3 presents the VIFs for the various study variables. The results indicate that the VIFs were not greater than 5, hence there was no collinearity amongst independent variables.

Table 3 Multicollinearity Test Statistics for Manufacturing Listed Companies in Nairobi Securities Exchanges

Variable	VIF	1/VIF
CF	2.14	0.466374
S	1.88	0.532819
T	1.52	0.656788
G	1.25	0.799893
P	1.11	0.898716
Mean VIF	1.58	

Heteroskedasticity Test Results for Manufacturing and Allied Companies Listed in Nairobi Securities Exchange

Table 4 shows the likelihood ratio tests statistics for manufacturing 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 46.27, 30.54 and 26.17 with a p-value less than 0.05. 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 Heteroskedasticty Test Results for Manufacturing and Allied Companies Listed in Nairobi Securities Exchange

Response Variable's models	Chi Square	Degree of freedom	P value
STA	46.27	5	0.000
LTA	30.54	5	0.000
DTA	26.17	5	0.0001

Stationarity Test Results for Manufacturing and Allied Companies Listed in Nairobi Securities Exchange

The unit root test statistics for companies listed in the manufacturing and allied sector in NSE are presented in Table 5. From the table, it is evident that all variables are stationary at the 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 differentiate the data.

Table 5 Stationarity Test Results for Manufacturing and Allied Companies Listed in Nairobi Securities Exchange

Variable		Statistic	Value	p-value
T	Inverse chi-squared (84)	P	14.0252	0.000
	Inverse normal	Z	5.3247	0.000
	Inverse logit t (199)	L*	0.3231	0.000
	Modified inv. chi-squared	Pm	0.0048	0.000
P	Inverse chi-squared (84)	P	33.3902	0.000
	Inverse normal	Z	-4.6418	0.000
	Inverse logit t (199)	L*	-1.8078	0.000
	Modified inv. chi-squared	Pm	3.6644	0.000
G	Inverse chi-squared (84)	P	86.8161	0.000
	Inverse normal	Z	-4.2291	0.000
	Inverse logit t (194)	L*	-9.1568	0.000
	Modified inv. chi-squared	Pm	13.761	0.000
CF	Inverse chi-squared (78)	P	6.8753	0.000
	Inverse normal	Z	3.9246	0.000
	Inverse logit t (199)	L*	0.896	0.000
	Modified inv. chi-squared	Pm	-1.3464	0.000
S	Inverse chi-squared (78)	P	10.7145	0.000
	Inverse normal	Z	3.1801	0.000
	Inverse logit t (199)	L*	0.146	0.000
	Modified inv. chi-squared	Pm	-0.6209	0.000

Hausman Test Results for Manufacturing and Allied Companies Listed in Nairobi Securities Exchange

As shown in Table 6 there was enough evidence to warrant rejection of the null hypothesis at 5% level of significance for LTA model with moderation, STA models with and without moderation and DTA model with moderation as accounted for by p value of 0.000, 0.0211, 0.0023 and 0.000. Consequently, the appropriate models to fit were fixed effects regression model. Further, there was not enough evidence to warrant rejection of the null hypothesis at 5% for LTA and models without moderation since their p values were greater than 0.05 as accounted for by p values of 0.7596 and 0.0855 respectively. Thus, the most appropriate model to fit was the random effects.

Table 6 Hausman Test Results for Manufacturing and Allied Companies Listed in Nairobi Securities Exchange

Dependent variable	Model	Chi Square	df	P value
LTA	Without moderator	1.87	4	0.7596
	With moderator	31.65	6	0.000
STA	Without moderator	11.54	4	0.0211
	With moderator	20.44	6	0.0023
DTA	Without moderator	8.17	4	0.0855
	With moderator	31.76	6	0.000

Granger Causality Test Results for Manufacturing and Allied Companies Listed in Nairobi Securities Exchange

As shown in Table 7, the p-values for all lagged 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 financial characteristic does not granger cause leverage is not rejected for manufacturing and allied listed companies in NSE. 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 do not granger causes leverage is rejected. It means that the financial characteristics of a firm, as a combination but not in isolation, can explain its leverage.

When the lagged values of DTA and individual financial characteristic were run against individual financial characteristics values at the same time, the p value for T and G were less than 5% level of significance. The p values for S and P were greater than the said significance level.

Table 7 Granger Causality Test Results for Manufacturing and Allied Companies Listed in Nairobi Securities Exchange

Dependent	Independent (Lagged)	F Statistic	P value
DTA	S, D, T, A	6.06	0.0063
	T, D, T, A	4.81	0.0042
	P, D, T, A	3.23	0.0149
	G, D, T, A	2.58	0.0293
	S, T, P, G, D, T, A	38.02	0.000
S	D, T, A, S	0.9	0.9172
T	D, T, A, T	0.9	0.4146
P	D, T, A, P	1.56	0.2249
G	D, T, A, G	2.03	0.1467

FGLS Regression Results of STA as Dependent Variable with Moderator for Manufacturing and Allied Listed Companies in Nairobi Securities Exchange

As shown in Table 8, results on the effect of financial characteristics on short term debt financing for energy and petroleum listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.077 hence firm sizes had a negative impact on short term debt financing when the operating cash flow was incorporated. The p value was 0.000 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 short term debt financing. The coefficient of TCF was -0.039 hence tangibility had a negative influence on short term debt as operating cash flow increased. The p value was 0.822 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically insignificant on long-debt financing.

The coefficients of PCF and GCF were -0.173 and -0.06 respectively. This indicates that profitability and growth opportunities had a positive influence on short debt respectively when operating cash flow was incorporated. The p values were 0.173 and 0.000 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant and significant 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 shows 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

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -0.386 - 0.039*.21 = -0.467$$

$$\frac{\partial STAit}{\partial Sit} = \beta_2 + \beta_7 CF = 0.0178 - 0.074*.21 = 0.0015$$

$$\frac{\partial STAit}{\partial Pit} = \beta_3 + \beta_8 CF = 0.054 - 0.173*.21 = 0.018$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.006 - 0.0598*.21 = -0.0067$$

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 short term leverage of manufacturing and allied companies listed at NSE.

Table 8 FGLS Regression Results of STA as Dependent Variable with and without Moderator for Manufacturing and Allied Listed Companies in Nairobi Securities Exchange

	Without Moderation				With Moderation			
Variable	Coefficient	Std. Error	Z	p>z	Coefficient	Std. Error	Z	p>z
cons	-.643	.134	-4.80	0.000	.240	.109	2.21	.027
T	-.075	.102	-.74	.461	-.386	.092	-4.17	.000
S	.061	.007	8.25	.000	.018	.006	2.77	.006
P	.011	.056	.20	.845	.0540	0.029	1.88	0.06
G	-.004	.006	-.67	.502	.006	.003	1.75	.08
CF					.995	.224	4.45	.000
TCF					-.038	.172	-.22	.822
SCF					-.078	.018	-4.33	0.000
PCF					-.173	.127	-1.39	.173
GCF					-.060	.013	-4.44	.000
	Wald chi2 (4) =86.88	$R^2 = 0.5150$		P > Chi2 0.00	Wald chi^2 (9) =634.5	$R^2 = 0.9211$		P > Chi^2 .0000

FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Manufacturing and Allied Firms Listed in Nairobi Securities Exchange

As shown in Table 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 0.089 hence firm size had a positive influence on long term debt financing when the operating cash flow was incorporated. The p value was 0.42 which is greater than the 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically insignificant on long term debt financing. The coefficient of TCF was -1.808 hence tangibility had a negative influence on long term debt as operating cash flow decreased. The p value was 0.013 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 -0.943 and -0.078 respectively. This indicates that profitability and growth opportunities had a negative influence on long term debt respectively when operating cash flow was incorporated. The p values were 0.055 and 0.217 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were negative and 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 shows 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

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = 0.863 - 1.808*0.21 = 0.484$$

$$\frac{\partial STAit}{\partial Sit} = \beta_2 + \beta_7 CF = 0.089 + 0.087*0.21 = 0.107$$

$$\frac{\partial STAit}{\partial Pit} = \beta_3 + \beta_8 CF = -0.035 - 0.944*0.21 = -0.23$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = -0.014 - 0.078*0.21 = -0.030$$

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 manufacturing and allied firms in NSE.

Table 9 FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Manufacturing and Allied Firms Listed in Nairobi Securities Exchange

Variable	Without Moderation				With Moderation			
	Coefficient	Std. Error	Z	p>z	Coefficient	Std. Error	Z	p>z
cons	-.740	.133	-5.55	.000	-1.749	.521	-3.36	.001
T	.310	.096	3.23	.001	.863	.305	2.83	.005
S	.042	.008	5.03	.000	.089	.029	3.1	.002
P	.146	.098	1.50	.133	-.035	.137	-.26	.798
G	.010	.010	1	.328	-.014	.014	-1	.327
CF					.228	1.119	.2	.839
TCF					-1.808	.730	-2.48	.013
SCF					.087	.107	.81	.42
PCF					-.943	.491	-1.92	.055
GCF					-.078	0.06	-1.24	.217
	Wald chi^2 (4) =46.45	R^2 = 0.3256	P > Chi^2 0.00		Wald chi^2(9) = 30.16	R^2 = 0.5233		p>Chi^2 .0004

FGLS Regression Results with DTA as dependent Variable with and without Moderator in Manufacturing and Allied Companies Listed in Nairobi Securities Exchange

As shown in Table 10, 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 -0.036 hence firm sizes had a negative influence on debt financing when the operating cash flow was incorporated. The p value was 0.737 which is greater than the 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically insignificant on debt financing. The coefficient of TCF was -1.519 hence tangibility had a positive influence on term debt as operating cash flow increased. The p value was 0.034 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically significant in debt financing.

The coefficients of PCF and GCF were 1.037 and -0.089 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 0.031 and 0.158 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were significant and 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 shows 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

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = 0.444 - 1.519 * 0.18 = 0.170$$

$$\frac{\partial STAit}{\partial Sit} = \beta_2 + \beta_7 CF = 0.125 - 0.036 * 0.18 = 0.118$$

$$\frac{\partial STAit}{\partial Pit} = \beta_3 + \beta_8 CF = 0.0291 - 1.037 * 0.18 = -0.158$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = -0.014 - 0.089 * 0.18 = -0.027$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating influence on the firm financial characteristics on the leverage of listed manufacturing and allied firms in Nairobi Securities exchange.

Table 10 FGLS Regression Results of DTA as Dependent Variable with and without Moderator in Manufacturing and Allied Companies Listed in Nairobi Securities Exchange

Variable	Without Moderation				With Moderation			
	Coefficient	Std. Error	Z	p>z	Coefficient	Std. Error	Z	p>z
cons	-1.286	.163	-7.92	.000	-1.756	.494	-3.56	0.000
T	.133	.102	1.30	.193	.444	.345	1.29	.198
S	.103	.009	11.05	0.00	.125	.025	5.03	0.000
P	-.093	.114	-.81	.417	0.029	0.139	0.21	0.834
G	-.002	.012	-.14	.885	-.014	0.014	1	.327
CF					1.625	1.145	1.42	.156
TCF					-1.519	.718	-2.12	.034
SCF					-0.036	.108	-.34	.737
PCF					-1.037	.482	-2.15	.031
GCF					-.078	0.06	-1.24	.217
	Wald chi^2 (4) =137.60	R^2 = 0.5917		P > Chi^2 0.00	Wald chi^2(9) = 98.86	R^2 = 0.7184		p>Chi^2 .0000

Conclusion and Recommendations

Based on the findings manufacturing companies listed in Nairobi should evaluate their leverage policy and adopt a short term management strategy that would match their business operational capacity. They should examine their borrowing capacity based on asset tangibility, growth opportunities, profitability, and firm size. Adherence to pecking order while seeking financial of listed companies will not only protect asset tangibility of listed companies but also minimize boost investors' confidence since they have more control over their investment. Management and professional bodies ought to develop manuals and financial simulation models which are geared towards educating and sensitizing management of listed companies on the most viable financing alternative.

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