Research Journal of Finance and Accounting
ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online)
Vol.13, No.8, 2022

Effect of Capital Structure on Liquidity and Growth: Evidence from the Nigerian Manufacturing Industry

Osaretin Kayode Omoregie
Lagos Business School, Pan-Atlantic University, Lagos, Nigeria.

Peter Abiodun Ige*
Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria.

Abstract
Capital structure decision is critical to a firm's liquidity, profitability, growth and shareholder value. Theoretical guidance suggests a positive relationship between capital structure, corporate liquidity, and growth, while observable results suggests varied mixed relationships. In this study, we examine the relationship between capital structure, corporate liquidity and growth utilizing data from twenty listed Nigerian manufacturing companies, using the pooled ordinary least square regression and Random-effect GLS regression model of panel data technique. Our result suggests that there is a negative relationship between capital structure and corporate liquidity. We find also a positive relationship between profitability ratio and two debt ratios. However, we find a consistently negative coefficient for total debts to equity ratio, while three debt ratios relate positively to revenue growth. We thus recommend that financial managers analyse the costs and benefits of debt in choosing the optimal capital structure.
Keywords: Capital Structure, Corporate Liquidity, Growth, and Manufacturing
DOI: 10.7176/RJFA/13-8-04
Publication date: April 30th 2022

1. Introduction

Capital structure and financing decisions are critical to firms. This has led to considerable efforts by researchers and corporate managers in understanding the relationship between the capital structure and the value of a firm. Since the work of Modigliani and Miller (MM) in 1958, wherein they posit that a firm's value is independent of capital structure decisions (particularly in an efficient capital market), there has been a substantial and on-going body of theoretical and empirical contribution to the subject. Although in 1963, MM relaxed some of their original underlying assumptions leading to their conclusion that capital structure or debt-equity choice can increase a firm's value, capital structure theory remains one of the most actively debated area of finance and economics for both academicians and practitioners (Negasa, 2016 and Salehi and Biglar, 2009). The capital structure of firms refers to how the firm's investment is financed using either equity or debt or an appropriate mix of both known as optimal capital structure that maximizes a company's market value while minimizing the cost of capital (Omoregie et al., 2019; Adam, 2019; Olusuyi and Felix, 2017).

Previous studies have focused on the effect of capital structure on profitability (Singh and Bagga, 2019; Negasa, 2016; Anthony and Odunayo, 2015; Adhari, 2015; Mujahid and Akhtar, 2014; Twairesh, 2014; Zeitun and Tian, 2014; Salehi and Biglar, 2009) and on the determinants of capital structure decisions and the profitability-liquidity trade-off occasioned by capital structure decisions (Omoregie et al. 2019). The conclusions from these studies are not definitive with findings and empirical evidence in support of both positive and negative relationships between capital structure and profitability. Also, the literature seems to give less attention to the effect of capital structure on corporate liquidity (Omoregie et al. 2019) despite the critical importance of liquidity and its management to the financial health of the firm (Michael, 2016). Extant literature reports mixed findings on the relationship between capital structure decisions and liquidity, with authors such as Omoregie et al. 2019; Udomsirikul et al., 2011; Lipson and Mortal, 2009 suggesting a negative effect between leverage ratios and corporate liquidity whereas, Asman, 2019; Ghasemi and Ab-Razak, 2016 and Sibilkov, 2009 find that the relationship is positive. Evidence from this present effort will be of help to finance managers and managers in providing more insight into the relationship between capital structure choices, liquidity and growth of a firm.

Nigerian manufacturing companies have been facing considerable challenges over the years with respect to access to capital, liquidity management and profitability. The limited access to long-term and appropriately priced capital has created a situation wherein capital structure and financing choices has become a matter of expediency, leading us to envisage a "expediency hypothesis or theory of capital structure" to explain the capital structure choices of Nigerian manufacturing (and other sectors) with often consequential adverse impact on the profitability, liquidity, growth, risk and value creation in this and other sectors. These conditions justify the need for this present study and other on-going empirical investigations into the relationship between capital structure choices, liquidity and growth.

Other issues facing the Nigerian manufacturing sector include regulatory and policy constraints, limited

access to capital, multiplicity of taxes, and trade facilitation issues, among others (Rafiq, 2018). There is also a spotlight on this sector as revealed by the clear desire of the government to encourage manufacturing for exports through import restriction policies, facilitation of cheaper funding and discriminatory foreign exchange policies in favour of the sector. Utilizing data from Nigerian manufacturing companies, this study investigates the effect of capital structure on corporate liquidity and growth.

The rest of the paper is arraigned as follows; section two which follows the introduction is a review of the existing literature followed by the methodology employed for the analysis in section three. The final section four presents the empirical results, analysis and discussion of findings.

2. Literature Review

2.1 Theoretical Issues

Since the seminal paper of Modigliani and Miller (MM) in 1958, there have been different theories about the capital structure of firms. MM argued that capital structure (debt-equity choice) is not relevant to the value of a firm in an efficient market and in the absence of corporate taxation. This is contrary to the conventional perspective that the use of debt and hence capital structure (mix of debt-equity choices) affects the value of the firm (Salehi and Biglar, 2009). There is however limited discourse in the literature on the impact of capital structure decisions on liquidity, profitability and growth (Omoregie et al., 2019).

i. Static trade-off theory

In this theory, firms set their target of debt-to-equity ratio and move towards the targeted ratio progressively (Myers, 1977). As noted by the recent works of Omoregie et al., (2019) and Adair and Adaskou (2015), the static trade-off theory fits in the literature triggered by Modigliani and Miller (1958) and Miller (1977) based on the assumptions that capital markets are perfect and there are neither tax or agency costs nor transaction costs. In their later study in 1963, MM include the effect of taxation in their model. Accordingly, they demonstrated that where interest expense on debt is tax-deductible, the firm value will increase with higher financial leverage, thus giving firms an incentive to use more debt in their capital structure rather. The value of a leveraged firm is higher in as much as the tax rebate benefits only the business itself (Adair and Adaskou, 2015). In sum, the static trade-off theory states that a firm follows a target debt-equity ratio where the associated benefits of the debt outweigh the associated risk of default or bankruptcy risk. This suggests that an optimal debt ratio is set by the balance of the trade-off between the benefit and cost of debt (Jensen and Meckling, 1976).

ii. The Pecking Order Theory

This theory was first presented by Donaldson in 1961 but was made popular by the research effort of Myers and Majluf in 1984. The basis for this theory of capital structure is asymmetric information between the managers and investors. Managers have more information about the firm's operation than investors, which usually results in the under-pricing of risk and stock value by investors. According to Myers and Majluf, the main conclusion inferred from this theory is that there is a hierarchy of firm preferences to the financing of their investments. The hierarchy of preferences requires that firms finance their investments first using internally available funds, followed by debt, and finally through external equity.

iii. Agency cost theory

Agency costs arise from the separation of ownership and control and conflicts of interest between managers and shareholders. Here debt is seen as a tool that ensures that managers are disciplined and focused on their fiduciary responsibility with respect to wealth creation for the equity-holders, rather than acting in their own interest. For companies with high cash flow and profitability, increased debt financing can be used to control the managers and ensure they focus on value adding decisions (Jensen and Meckling, 1976). One problem with this theory is that managers may not receive all the benefits of their activities when operating with a high level of debt, especially when manager's share in the ownership of the company is low. When the manager's ownership is high, this inefficiency decreases (Saleyi & Biglar, 2009). Besides, there are also additional costs of using debt financing which includes the bankruptcy costs and agency costs associated with the monitoring of investments by bondholders. In sum, the conflict between the managers and shareholders demonstrates that high leverage could lead to poor performance.

2.2 Empirical Issues

While previous studies have investigated the effect of capital structure on the growth of firms with mixed results, the effect of capital structure on corporate liquidity has received relatively little research attention, with inconsistent results. The need for further investigation of these relationships is thus justified, and this is the objective of this study.

Considering the effect of capital structure on corporate growth, Mujahid and Akhtar (2014) evaluate the impact of capital structure on the firm's financial performance and shareholders' wealth in the Pakistan's textile industry. Using regression analysis on the sample data of 155 textile firms for the year 2006 to 2011, their results show that the capital structure positively impacts the firm's financial performance and shareholders' wealth.

Similarly, with emphasis on the Ethiopian large private manufacturing firms, Negasa (2016) found a significant positive relationship between firms' profitability and total debt ratio. Adopting a descriptive and explanatory research design, Anthony and Odunayo (2015) examines the major determinant of the capital structure of quoted composite insurance companies in Nigeria and found that a positive relationship exists between return on asset and leverage. The study of Adhari (2015) on three ASEAN countries i.e., Indonesia, Malaysia, and Singapore also reveal that a firm's capital structure positively and significantly affected firm performance, except for the data from Indonesian industries. Furthermore, the finding from the more recent efforts of Singh and Bagga (2019) and Asma (2019) are also in congruence with the positive effect of capital structure on corporate growth. These results imply that the various companies under the studies are depending more on debt financing and holding a high proportion of debt with resultant positive impact on profitability and firm value.

On the contrary however, Omoregie et al., 2019; Twairesh, 2014; Velnampy and Anojan, 2014; Zeitun, and Tian, 2014; Ebimobowei et al., 2013; Salehi and Biglar, 2009 among others, find the relationship between capital structure and profitability to be negative. Specifically, Omoregie et al., (2019) investigated the link between capital structure and profitability-liquidity trade-off using descriptive and Panel-VAR analysis for 18 listed manufacturing companies in Nigeria. They reported that debt ratios have a significant negative effect on profitability. A similar effort by Ebimobowei et al. (2013) for the quoted firms in the Nigerian Stock Exchange (NSE) found that short-term debt, long-term debt and total debt have a significant negative relationship with performance using return on asset and return on equity as a performance variable. Also, for 167 Jordanian companies during the period between 1989 to 2003, the results of the analysis of Zeitun, and Tian, (2014) showed that a firm's capital structure has a significant negative effect on the firm's performance measures, using both the accounting and market's measures. This negative relationship can be interpreted to mean that high leverages companies would have less profitability and growth. In other words, the debt level is over the optimized level.

Also, Udomsirikul et al. (2011) explore the impact of liquidity on capital structure decisions for firms in Thailand. Applying regression analysis, the empirical results of these authors show an inverse relationship between liquidity and leverage ratios. This result is consistent with the finding of Lipson and Mortal (2009). In the study, they examine the relationship between equity market liquidity and capital structure for firms in the United States of America (USA). The finding suggests that firms operating in more liquid equity markets have lower leverage and prefer equity financing than debt financing when raising capital. Also, the recent study of Omoregie et. al. (2019) finds similar empirical evidence between the variables. While using a different method for 18 listed Nigerian manufacturing companies, they reported that the relationship between debt ratios and liquidity is negative. However, consistent with the trade-off theory, studies from authors such as Asman (2019), Ghasemi and Ab Razak (2016), and Sibilkov (2009) found the effect of capital structure on corporate liquidity to be positive.

3. Methodology

3.1 Data Description and Source

The study employed annual secondary data, which were collated from the audited financial reports of twenty manufacturing companies out of the thirty-five listed in the Nigeria Stock Exchange (NSE) as of January 2019, for the period between 2010 to 2018. The companies were selected based on data availability and obtained from online Bloomberg financial database. Three indicators each were used to capture the companies' capital structure and their corporate liquidity stance while six indicators were employed to measure corporate growth.

Following the recent studies of Asma (2019), Omoregie et al. (2019), Rossi (2014) and Udomsirikul et al. (2011), we captured capital structure using total debt to equity ratio and total debt to asset ratio as well as long-term debt to equity. Current ratio, quick ratio, and cash ratio are the measures adopted to indicate the liquidity of the companies. Regarding corporate growth, measures such as return on equity, return on asset, price to sale ratio, revenue growth, net profit margin, and operating profit margin were employed. Lastly, we use the logarithm of the total asset to depict firm size and it stands as our control variable in the model. Table 1 presents the variables, their symbol, and their respective measurement.

Table 1: Variable, symbol, and Measurement

Variable	Symbol	Measurement
Capital Structure (Independent)		
Debt to Equity Ratio	TDE	The ratio of total liabilities to total shareholders' equity
Debt to Asset Ratio	TDA	The ratio of total debt to total assets
Long Debt to Equity	LDE	Long term liabilities divided shareholders' equity
Liquidity Ratios (Dependent)		
Current Ratio	CUR	The ratio of current assets to current liabilities
Quick Ratio	QRA	Cash + cash equivalents + short term investments + current receivables divided by current liabilities
Cash Ratio	CAR	The ratio of cash + cash equivalents to total current liabilities
Corporate Growth (Dependent)		
Return to Equity	ROE	Net income divided by the shareholder's equity
Return to Asset	ROA	Net income divided by the average total assets
Price to Sale Ratio	PSR	The ratio of market value per share to sales per share
Revenue Growth	REV	Revenue growth (Year over year)
Net Profit Margin	NPM	The ratio of net profit to total revenue
Operating Profit Margin	OPM	Operating income divided by net sales
Control		
Firm Size	FZE	The logarithm of total assets

3.2 Estimation Techniques

The preliminary evaluation of our data was done using panel descriptive analysis before we employed econometric approach to establish the relationship between our variables. In the econometric analysis, we employed the pooled ordinary least square regression and Random-effect GLS regression model as necessitated by the Hausman test.

3.3 Model Specification

Based on the result of model specification tests, the Random-effect GLS regression model of panel data is selected to analyse the relationship between our dependent variables (corporate liquidity and corporate growth) and independent variable (capital structure). The firm's size (FZE), is incorporated into the model as the controlled variable. Therefore, the specific panel data regression model for this study is represented as:

$$CLIQ_{it} = f(CAP)_{it} \quad 1$$

$$CGRT_{it} = f(CAP)_{it} \quad 2$$

Where $CLIQ$ represents corporate liquidity and depends on CAP – capital structure. $CGRT$ represents corporate growth variables. i represent the cross-section dimension of the variable and t is the time dimension. Incorporating our specific variables into equation 1 and 2, we have the following;

$$CUR_{it} = \alpha_0 + \alpha_1 TDE_{it} + \alpha_2 TDA_{it} + \alpha_3 LDE_{it} + \alpha_4 FZE_{it} + \mu_{it} \quad 3$$

$$QRA_{it} = \beta_0 + \beta_1 TDE_{it} + \beta_2 TDA_{it} + \beta_3 LDE_{it} + \beta_4 FZE_{it} + \mu_{it} \quad 4$$

$$CAR_{it} = \gamma_0 + \gamma_1 TDE_{it} + \gamma_2 TDA_{it} + \gamma_3 LDE_{it} + \gamma_4 FZE_{it} + \mu_{it} \quad 5$$

$$ROE_{it} = \delta_0 + \delta_1 TDE_{it} + \delta_2 TDA_{it} + \delta_3 LDE_{it} + \delta_4 FZE_{it} + \mu_{it} \quad 6$$

$$ROA_{it} = \rho_0 + \rho_1 TDE_{it} + \rho_2 TDA_{it} + \rho_3 LDE_{it} + \rho_4 FZE_{it} + \mu_{it} \quad 7$$

$$PSR_{it} = \tau_0 + \tau_1 TDE_{it} + \tau_2 TDA_{it} + \tau_3 LDE_{it} + \tau_4 FZE_{it} + \mu_{it} \quad 8$$

$$REV_{it} = \omega_0 + \omega_1 TDE_{it} + \omega_2 TDA_{it} + \omega_3 LDE_{it} + \omega_4 FZE_{it} + \mu_{it} \quad 9$$

$$NPM_{it} = \sigma_0 + \sigma_1 TDE_{it} + \sigma_2 TDA_{it} + \sigma_3 LDE_{it} + \sigma_4 FZE_{it} + \mu_{it} \quad 10$$

$$OPM_{it} = \pi_0 + \pi_1 TDE_{it} + \pi_2 TDA_{it} + \pi_3 LDE_{it} + \pi_4 FZE_{it} + \mu_{it} \quad 11$$

Where $\alpha_1 \text{ to } \alpha_4, \beta_1 \text{ to } \beta_4, \gamma_1 \text{ to } \gamma_4, \delta_1 \text{ to } \delta_4, \rho_1 \text{ to } \rho_4, \tau_1 \text{ to } \tau_4, \sigma_1 \text{ to } \sigma_4, \pi_1 \text{ to } \pi_4 \text{ and } \omega_0 \text{ to } \omega_4 \text{ are}$ the respective coefficients for TDE, TDA, LDE, and FZE. α_0, β_0, γ_0, δ_0, ρ_0, τ_0, ω_0, σ_0, and π_0 are the constants for respective models. μ is the error term. Other elements remain as defined above. We expect that our independent variables will have a positive effect on the dependent variables.

4. Empirical Results

4.1 Descriptive Statistics

Before estimating the relative effects between our variables, descriptive statistics is used to help us understand the features of the data used in the study. The descriptive statistics give information about the sample statistics such as the mean, median, skewness, kurtosis, minimum value, maximum value and the spread of the sample measured by the standard deviation. These statistics are used to test for the normality of the distribution. The result of this analysis is presented in Table 2. The results show that all the series display a high level of consistency as their mean values fall within the minimum and maximum values of the series.

Table 2: Descriptive Statistic

Variable	Mean(overall)	Standard Deviation			Minimum	Maximum
		Overall	Between	Within		
Capital Structure (CAP)						
Debt to equity (TDE)	57.974	73.654	63.235	41.430	0	350.846
Debt to assets (TDA)	18.560	19.499	17.883	8.8336	0	82.7168
Long debt to equity (LDE)	19.621	28.829	21.738	19.351	0	149.333
Corporate Liquidity ($CLIQ$)						
Current ratio (CUR)	1.2940	0.6915	0.5205	0.4683	0.3043	6.0213
Quick ratio (QRA)	0.4866	0.4161	0.2921	0.3026	0.0481	2.1958
Cash ratio (CAR)	0.3092	0.3033	0.1898	0.2399	0.0241	1.6198
Corporate Growth ($CGRT$)						
Return on equity (ROE)	20.004	27.221	18.951	19.817	-114.10	99.1929
Return on assets (ROA)	9.1444	9.4478	6.6523	6.8524	-41.601	30.3602
Price to book value (PBV)	4.1570	5.2188	4.8611	2.1424	-0.711	27.4825
Net profit margin (NPM)	9.2584	11.735	9.4247	7.2713	-49.117	52.2849
Operating profit margin (OPM)	14.276	11.478	9.4924	6.7576	-47.435	50.7932
Revenue growth (REV)	10.581	16.579	6.0165	15.585	-26.44	67.9482
Control						
Firm Size (FZE)	24.307	1.9395	1.9366	0.4232	19.9803	28.1583

4.2 Regression Results

Table 3 presents the results of three models with capital structure as the explanatory variable to corporate liquidity. Each of the models represents a measure of corporate liquidity to the measures of capital structure. Specifically, the first model measures the effect of leverage ratios on the current ratio. In the second model, we measure the effect on the quick ratio while the third model focuses on the result of the effect of capital structure on cash ratio.

Based on the first model and with focus on the result of pooled OLS presented in column (i), the value of F-statistic is highly significant. This implies that our regression model has explanatory power and policy conclusions can be made base on the result. The value of the coefficient of determination shows that 33.88% of the variation in the current ratio is explained by debt ratios and firm size. Concerning individual explanatory variables, the t-test shows that TDA and FZE are significant at 10% and 1% respectively. The sign of the coefficients of each explanatory variable reveals a negative relationship with the current ratio, which indicates that there is a negative relationship between capital structure and corporate liquidity. Considering the results of the random-effect as presented in column (ii), the magnitude is maintained to a large extent. However, only FZE is significant at 1% level of significance. It should be noted that the choice of the random-effect model is necessitated by the Hausman test, which reveals an insignificant probability value.

The results for the second model also show that the model performed very well as the F-statistic is significant at 1% level of significance in both columns. The R^2 reveals that leverage ratios cause 20.09% changes in the quick ratio in the first column while the value is 19.52% in the second column. Only the coefficient of TDA is significant at 5% level in both columns. Also, except for TDE under pooled OLS and random-effect models, all other coefficients (including the control variable) carry negative signs indicating that they have an inverse relationship with a quick ratio. This result is relatively in agreement with the first model. In the same vein, the results of the third model show that the explanatory variables explained 16.00% and 15.75% variation in cash ratio in both columns respectively. Just as in the second model, only TDE shows a positive relationship with this measure of liquidity in both columns.

Table 3: Effect of Capital Structure on Corporate Liquidity

Regression	(i) Pooled OLS	(ii) Random effects
	Current Ratio	
TDE	-0.0080 [0.46]	-0.0013 [0.75]
TDA	-0.0119 [1.75] *	-0.0077 [0.97]
LDE	-0.0001 [0.07]	0.0003 [0.20]
FZE	-0.1159 [4.68] ***	-0.1140 [2.79] ***
Constant	4.3736 [7.38] ***	4.2723 [4.32] ***
R^2	0.3388	0.3364
F-Stat. (4, 164)	21.01 ***	27.42***
Hausman (Fixed)		0.6523
	Quick Ratio	
TDE	0.0014 [1.34]	0.0007 [0.65]
TDA	-0.0145 [3.13] **	-0.0111 [2.16] **
LDE	-0.0001 [0.01]	-0.0004 [0.35]
FZE	-0,0108 [0.68]	-0.0028 [0.11]
Constant	0.9211 [2.42] **	0.5810 [0.89]
R^2	0.2009	0.1952
F-Stat. (4, 164)	10.31***	16.30***
Hausman (Fixed)		0.5884
	Cash Ratio	
TDE	0.0076 [0.94]	0.0004 [0.47]
TDA	-0.0082 [2.41] **	-0.0068 [1.80] *
LDE	-0.0040 [0.43]	-0.0005 [0.60]
FZE	-0.0072 [0.62]	-0.0009 [0.05]
Constant	0.5903 [2.11] **	0.4372 [1.05]
R^2	0.1600	0.1575
F-Stat. (4, 164)	7.81***	15.81***
Hausman (Fixed)		0.5647

Figures in parenthesis are/t-values/ with (***), (**) and (*) indicates significance at 1%, 5% and 10% respectively

Regarding the effect of capital structure on firm growth, the results are presented in Table 4 taking each measure of growth as our dependent variable in relation to debt ratios. Columns (i) and (ii) show the results of pooled OLS and random effect regressions respectively. The sixth and seventh models show the results of the effect of capital structure on ROE and ROA. For these models, the results reveal significant F-statistics suggesting that our regressions are not spurious. In respect to ROE, the coefficient of determination of 0.2084 and 0.1774 in the respective column show that the explanatory variables together cause 20.84% and 17.74% changes in firm growth. Using the t-test, the coefficients of TDE, LDE, and FZE are significant under the pooled OLS. TDE and LDE maintain their significance in the second column with random effect estimation. Also, all the explanatory variables except TDE show a positive relationship with ROE. The seventh model shows that TDE and FZE are significant in column (i) while only TDE shows significance in column (ii). The R^2 explained 22.02% and 16.39% variation in ROA in both columns respectively. Consistent with the sixth model, TDE is negatively related to ROA while other variables show a positive relationship.

The eighth and ninth models show the results of the effect of capital structure on PSR and REV. In consonance with the seventh model, the coefficients of TDE and FZE in relation to PSR are significant with their respective signs maintained. All the explanatory variables are significant and relate positively to REV. Lastly, the tenth and the eleventh models measure the effect of leverage ratios on NPM and OPM respectively as presented in Table 5 in the appendix. In the first column, only the coefficient of LDE is not significant and while all other variables relate positively with NPM, TDE shows a negative relationship. The sign of TDE is maintained and significant in the random effect estimation. However, TDA is not significant and have a negative coefficient. LDA and FZE are significant. Considering OPM, the magnitude of the results is preserved. It should be noted that TDE is negatively related to corporate growth except for model nine which show a positive relationship between the variable and REV.

Table 4: Effect of Capital Structure on Corporate Growth

Regression	(i) Pooled OLS	(ii) Random effects
	ROE	
TDE	-0.1815 [2.47] **	-0.2102 [3.06] ***
TDA	0.0362 [0.12]	0.0219 [0.07]
LDE	0.3130 [3.68] ***	0.2346 [3.09] ***
FZE	2.3099 [2.14] **	1.2538 [0.66]
Constant	-31.9845 [1.24]	-3.1152 [0.07]
R^2	0.2084	0.1774
F-Stat. (4, 160)	10.53***	43.73***
Hausman (Fixed)		0.0918
	ROA	
TDE	-0.0838 [3.33] ***	-0.0598 [2.49] **
TDA	0.1076 [1.02]	0.0221 [0.20]
LDE	0.0339 [1.17]	0.0253 [0.95]
FZE	1.2499 [3.40] ***	0.3696 [0.57]
Constant	-18.9342 [2.14] **	3.5578 [0.23]
R^2	0.2202	0.1639
F-Stat. (4, 161)	11.37***	32.63***
Hausman (Fixed)		0.7512
	PSR	
TDE	-0.0151 [3.23] ***	-0.0063 [1.72] *
TDA	0.0290 [1.49]	0.0104 [0.59]
LDE	0.0023 [0.44]	0.0003 [0.08]
FZE	0.5280 [7.88] ***	0.4242 [3.55] ***
Constant	-10.7956 [6.73] ***	-8.4091 [2.89] **
R^2	0.3400	0.3228
F-Stat. (4, 164)	21.12***	17.33**
Hausman (Fixed)		0.5370
	REV	
TDE	0.0112 [0.17]	0.1630 [1.92] **
TDA	0.0139 [0.05]	1.1740 [2.88] ***
LDE	0.0408 [0.59]	0.0554 [0.68]
FZE	2.3590 [2.65] ***	7.4127 [2.02] **
Constant	-46.6826 [2.17] **	-57.3126 [1.74] *
R^2	0.1226	0.1268
F-Stat. (4, 137)	3.97 **	4.97***
Hausman (Fixed)		0.2339

Figures in parenthesis are/t-values/ with (***), (**) and (*) indicates significance at 1%, 5% and 10% respectively

4.3 Discussion and Recommendation

Against the a priori expectation, we find based on the results an inverse relationship between current ratio and debt ratios in both regression models indicating that an increase in debt financing decreases firm's current assets. The negative relation can also be interpreted to mean that an increase in total debts relative to equity would require the companies to hold less proportion of current assets to meet its financial obligations, which may increase the agency cost. This finding, taking a cue from quick and cash ratios, remain the same. Hence, we conclude that the relationship between capital structure and corporate liquidity has been negative in the case of Nigerian manufacturing companies. Similar findings can be found in the studies of Omoregie et al. (2019), Udomsirikul et al. (2011) and Lipson and Mortal (2009). However, this result is contrary to that of Asma (2019) who find a bi-directional relationship between debts ratios and current asset meaning that an increase in total debt increases or decreases the current assets. In consonance with the static trade-off theory, authors such as Ghasemi and Ab Razak (2016), and Sibilkov (2009) found a direct relationship between capital structure and liquidity ratios.

Considering the effect of capital structure on corporate growth, we find evidence to support a positive relationship as return on equity and return on assets are positively related to debt to assets ratio and long debt to equity ratio. There is also insight from the results that net profit margin and operating profit margin are positively related to debt to assets ratio and long-term debt to equity ratio. The results suggest that the higher the

debt ratios, the higher the profit the company generates on shareholders' investment and show how efficiently profit is being made from the assets employed. Also, the positive relation between debt ratios and net profit margin and operating profit margin indicates that a firm can control its production cost and that firm is earning high profits, performing good and growing. Generally, the results show that the company's profitability depends on debt financing. The findings from the studies such as Singh and Bagga (2019), Asma (2019), Negasa (2016), Adair and Adaskou (2015), Mujahid and Akhtar (2014) are similar to the one in this study. On the contrary, Omoregie et al. (2019), Dahiru et al. (2016), Twairesh (2014), Ebimobowei et al. (2013), etc. found a negative relationship between capital structure and corporate growth. Simply, the negative relationship suggests that high leverage companies would have less profitability and growth. The evidence for this relationship could be high costs of external resources and information asymmetry resulting in high agency costs (Salehi and Biglar, 2009). Based on the foregoing, we recommend that financial managers should take the necessary effort in analysing the costs and benefits of debt in order to choose the optimal capital structure.

4.4 Conclusion

In this study, we examine the effect of capital structure on corporate liquidity and growth based on the data from the manufacturing industry in Nigeria between the period of 2010 and 2018. Capital structure is measured using total debt to equity ratio, total debt to assets ratio and long-term debt to equity ratio. We measured corporate liquidity by calculating the company's current ratio, quick ratio, and cash ratio. Growth is measured by return on equity, return on assets, price to sale ratio, revenue growth, net profit margin and operating profit margin. Regression analysis was carried out using the STATA statistical package on nine models. The results reveal that each explanatory variable shows a negative relationship with the current ratio. Consistent results were obtained taking a cue from quick and cash ratios.

With respect to the relationship between capital structure (debt ratios) and profitability, our finding supports a positive relationship as return on equity and return on assets are positively related to debt to assets ratio and long-term debt to equity ratio. Net profit margin and operating profit margin are also positively related to debt to assets ratio and long-term debt to equity ratio. Besides, contrary to the negative coefficients observed between debt to equity ratio and other measures of growth, the result reveals a positive relationship between the variable and revenue growth in the ninth model. Overall, the results suggest that there is a negative relationship between capital structure and corporate liquidity and a positive relationship between capital structure, profitability and growth. We recommend that managers deliberately contemplate their capital structure choices given the implication of this decision for liquidity, profitability and growth. The choice of debt-equity mix in the capital structure of a business will continue to require a balance between the benefits of debts in leveraging equity value due to the debt tax shield and the downside risk of liquidity constraints and bankruptcy risk. Managers should as much as possible avoid an expediency approach to capita structure decisions.

This study was limited to the manufacturing sector in Nigeria. Further studies to include other sectors of the economy over a longer time frame and a comparative study to include other regions will improve our understanding and universal application of findings.

References

Adair, P. and Adaskou, M. (2015). Trade-off-theory vs. pecking order theory and the determinants of corporate leverage: Evidence from a panel data analysis upon French SMEs (2002–2010), *Cogent Economics & Finance*, *3*(1), p.1006477.

Adam, H. (2019). Optimal capital structure. Corporate Finance and Accounting, *Investopedia.*

Adaramola Anthony, O. (2015). Determinants of capital structure in Nigerian quoted composite insurance companies, *Global Journal of Management and Business Research.*

Adhari, R., (2015). The Effect of Capital Structure and Ownership Structure on Firm Performance: A Test of the Reverse Causality Hypothesis in ASEAN Countries.

Anojan, V. and Velnampy, T. (2014). Capital structure, liquidity position and their impact on profitability: A study of listed telecommunication firms in Colombo stock exchange (CSE), Sri Lanka, *Research Journal of Finance and Accounting*, *5*(9), pp.131-139.

Dahiru, I.,Dogarawa, A.B., Haruna, M.A. (2016).Effect of capital structure on the financial performance of listed manufacturing firms in Nigeria, *Nigerian Journal of Management Technology and Development, 7(2), 87-97.*

Ebimobowei, A., Okay, O.E. and Binaebi, B. (2013). Capital structure and the operating performance of quoted firms in the Nigerian stock exchange, *Research journal of finance and accounting, 4(5), pp.6-22.*

Ghasemi, M. and Ab Razak, N.H. (2016). The impact of liquidity on the capital structure: Evidence from Malaysia, *International journal of economics and finance, 8(10), pp.130-139.*

Lipson, M.L. and Mortal, S.(2009).Liquidity and capital structure, *Journal of financial markets, 12(4), pp.611-644.*

Michael, M. (2016). What are the objectives of liquidity management? *The Global Treasurer*

Modigliani, F. and Miller, M.H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment,

American Economic Review, 48 (3): 261-297. Revista Base (Administração e Contabilidade) da UNISINOS, *5*(2), pp.154-155.

Modigliani, F. and Miller, M.H. (1963). Corporate income taxes and the cost of capital: a correction, *The American economic review, pp.433-443.*

Mujahid, M. and Akhtar, K. (2014). Impact of capital structure on firm's financial performance and shareholders wealth: Textile Sector of Pakistan, *International Journal of Learning and Development, 4(2), pp.27-33.*

Myers, S.C. (1984). The capital structure puzzle, *The journal of finance, 39(3), pp.574-592.*

Myers, S.C. and Majluf, N.S. (1984). Corporate financing and investment decisions when firms have information that investors do not have (No. w1396), *National Bureau of Economic Research.*

Negasa, T. (2016). The Effect of Capital Structure on Firms' Profitability (Evidenced from Ethiopian).

Olusuyi, A.E. and Felix, A.E. (2017). The Effect of Capital Structure on the Financial Performance of Manufacturing Firms in Nigeria (2008-2014), *Journal of Accounting and Financial Management, 3(3), pp.37-48.*

Omoregie, O.K, Olofin, S.A. and Ikpesu, F. (2019). Capital Structure and the Profitability-Liquidity Trade-off, *International Journal of Economics and Financial Issues*, *9*(3), pp.105-115.

Rafiq, R. (2018). Manufacturing in Nigeria: Status, challenges, and opportunities, *NTU-SBF Centre for African Studies*

Rossi, M. (2014). Capital structure of small and medium enterprises: the Italian case, *International journal of globalisation and small business*, *6*(2), pp.130-144.

Salehi, M. and Biglar, K. (2009). Study of the relationship between capital structure measures and performance: Evidence from Iran, *International Journal of Business and Management, 4(1), pp.97-103.*

Salman, A. (2019). Effect of Capital Structure on Corporate Liquidity and Growth: Evidence from Tobacco Industry in Pakistan, Academy *of Strategic Management Journal'.*

Sibilkov, V. (2009). Asset liquidity and capital structure, *Journal of Financial and Quantitative Analysis, 44(5), pp.1173-1196.*

Singh, N.P. and Bagga, M. (2019). The Effect of Capital Structure on Profitability: An Empirical Panel Data Study, *Jindal Journal of Business Research, 8(1), pp.65-77.*

Twairesh, A.E.M. (2014). The impact of capital structure on firm's performance evidence from Saudi Arabia, *Journal of Applied Finance and Banking, 4(2), p.183.*

Udomsirikul, P., Jumreornvong, S. and Jiraporn, P. (2011). Liquidity and Capital Structure: Evidence from a Bank-dominated Economy, *Available at SSRN 1725745*.

Udomsirikul, P., Jumreornvong, S., and Jiraporn, P. (2011). Liquidity and capital structure: The case of Thailand, *Journal of Multinational Financial Management, 21(2), 106-117.*

Zeitun, R. and Tian, G.G. (2014). Capital structure and corporate performance: evidence from Jordan, *Australasian Accounting Business & Finance Journal, Forthcoming.*

Appendix

Regression	**(i) Pooled OLS**	**(ii) Random Effect**
	NPM	
TDE	-0.1578 [5.54] ***	-0.0794 [3.12] ***
TDA	0.3462 [2.90] ***	-0.0172 [0.14]
LDE	0.0246 [0.75]	0.0590 [2.10] **
FZE	2.5319 [6.20***]	1.6650 [2.36] **
Constant	-49.8107 [5.10] ***	-27.3029 [1.59]
R^2	0.3627	0.3050
F-Stat. (4, 164)	23.33***	39.91***
Hausman (Fixed)		0.5391
	OPM	
TDE	-0.1326 [4.59] ***	-0.0480 [1.88] *
TDA	0.3035 [2.51] **	-0.0622 [0.52]
LDE	0.0019 [0.06]	0.0127 [0.45]
FZE	2.8617 [6.91] ***	2.1421 [2.96] ***
Constant	-53.1033 [5.35] ***	-34.1207 [1.94] **
R^2	0.3346	0.2788
F-Stat. (4, 164)	20.61***	30.50
Hausman (Fixed)		0.4172

Figures in parenthesis are/t-values/ with (***), (**) and (*) indicates significance at 1%, 5% and 10% respectively