FIRM'S VALUE AND CAPITAL STRUCTURE: EVIDENCE FROM QUOTED INDUSTRIAL GOODS COMPANIES IN NIGERIA

BY

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Abstract

Capital structure decision of a company may not solely have influence on firm's profitability but also on company's security value. In line with this statement, this research work examined the influence of capital structure on firm's value of quoted industrial goods companies in Nigeria for the period of twenty years, 2000 to 2019. Secondary data gathered from financial statements of sampled companies were used. Findings of fixed effect model revealed that collectively all the variables used to capture capital structure in this study have strong and substantial influence on companies' security value of sampled quoted industrial goods companies in Nigeria. The study recommends that management of quoted industrial goods companies should institute a perfect and efficient capital structure policy that will minimise the cost of capital, improve companies' market value and maximise shareholders' wealth.

Keywords: Capital Structure, Firm's Value, Industrial Goods Companies and Nigeria

Introduction

Numerous empirical research studies have emerged on the effect of capital structure on firm's value (Aggarwal & Padhan (2017), Hoque, Hossain & Hossain (2014) and Igbinovia & Ogbeide (2019). Exchange of ideas on influence of capital structure variables on company's market worth is still continuing and conclusion of past empirical studies reports mixed results. Many empirical studies reported no relationship between firm's capital structure and market value (Dhananjaya, 2017; Garima, 2013; Ogbulu & Emeni, 2012). Other studies reported relationship between firm's capital structure and market value (Du,Wu& Liang, 2016; Ibrahim, 2017; Lawal, 2014; Sarakiri, 2020).

Many previous authors explained that apart from firm's profitability and liquidity, financial leverage of a company is another important factor that may influence company's security value. They concluded that increase in firm's financial leverage, that is, increase in proportion of debt to equity will increase security worth of a company. Nevertheless, important of financial leverage on firm's value has not been fully proved in the literature, since there are few studies focused on influence of capital structure on company's security value, particularly in less-developed market like Nigeria, especially the industrial goods sub-sector of economy. Based on above reasons, this research work tries to examine the impact of capital structure on firm's value of quoted industrial goods companies in Nigeria between periods of 2000 to 2019.Following this introduction section, the remaining of this research work is presented in this manner: second section examines the conceptual, theoretical and relevant literature, while third section outlines the research techniques. Section four provides the study's findings and discussion, while section five ends the study.

Literature Review

Conceptual Clarifications

Capital structure of a company can be referred to as ways in which company combines its debt with equity. It is the proportionate relationship between debt and equity finance. According to Chowdhury (2015), selection between debt and equity capital is to search for the appropriate financial leverage for the company, which would maximise the shareholders' wealth. Firm's capital structure can be determined by many factors. These factors are grouped into internal or micro factors and external or macro factor. The internal factors are profitability, operating leverage, period of finance, growth rate, cost of source of finance and tax policy. The external factors are capital market condition, interest rate, inflation rate, government policy and economic condition (Okeke & Okeke, 2019). In the literature capital structure was determined through some ratios, among them are: debt to equity ratio, debt to total assets ratio, equity to total assets ratio and interest coverage ratio among others.

Company's value can be referred to as an economic measure reflecting the market value of an enterprise (Bolte & Truve, 2014). It connotes efficiency signal of firm's performance in stock market. Firm's value measured by past researchers using market price per share, market value of equity divided by book value of equity, book value of equity divided by long term debt, tobin-q among others. The connection between financial leverage and company's value has looked into by many researchers. Many researchers argued that capital structure of firm has strong or adverse influence on company's market worth (Al-Taani, 2013; Garima, 2013; Oboh, Isa & Adekayo, 2012, Sarakiri, 2020). Listed industrial goods companies in Nigeria are companies that manufacture and distribute capital goods used in building and manufacturing. Companies under this sub-sector produce and sell machinery, equipment, and supplies rather than selling directly to consumers. As at 31st December, 2020, twelve companies in this sub-sector were listed on the Nigeria Stock Exchange.

Theoretical Framework

Net income theory, conventional theory, pecking order theory, market timing theory, and trade-off theory are just a few of the ideas that have been proposed to link capital structure to business value in the literature. The trade-off hypothesis is the underpinning theory for this investigation. Kraus and Litzenberg came up with the concept of trade-off theory in 1973. According to the theory, managers of businesses should devise optimal capital structures that will balance costs and benefits of capital provided by outsiders and capital provided by owners of the company. The theory concludes that firm should continue to raise more debt finance up to optimal point which called optimal capital structure level, where the value of firm's share will be at maximum. This will be the point where security worth of the company will be maximised and total costs of all sources of funds will be minimised.

Review of Related Literature

In the literature many past research works under sought the connection between capital structure management and firm's value using different variables and methodologies. Among them is the study of Igbinovia and Ogbeide (2019) that investigated the link between financial leverage and company's market worth of manufacturing corporations in Nigeria. The study used sample of 15 public traded companies on Nigeria stock exchange, from 2012 to 2017. Results of the research work revealed that leverage, tangible properties, profitability and company's age have strong and important influence on company's value. Nevertheless,

size of firm's has an adverse and negligible effect on firm's value of selected listed manufacturing companies in Nigeria.

Aggarwal and Padhan (2017) conducted a research in India on the influence of debt-equity ratio and company quality on company's value for the period of 2001 to 2015. The authors used sampled of 22 India hotels listed in Bombay stock exchange. Researchers used panel data approaches such as pooled OLS, fixed effect, and random effect models to analyse the data. The study's findings revealed that company's quality, leverage, liquidity, size, and macro factors have strong and substantial association with firm's value.Dhananjaya (2017) carried out study on effect of market valuation on debt-equity decision in India quoted companies. Panel data technique employed to process the data. The findings revealed that debt-equity has undesirable influence on a company's market value and that market worth has a long-term effect on company's debt-equity decision. Furthermore, the findings indicted that security worth of a company is one of the important determinants of firms' decision to issue seasoned equity.

Another study by Chowdhury (2015) examined the impinge of debt-equity formation on the company's stock worth of listed non-financial companies in Bangladesh from 1999 to 2013. A subset of 77 non-financial companies quoted on the Dhaka and Chittagong stock exchanges are used as a sample size. Data were analysed using descriptive statistics, correlation analysis, and a cross-sectional time series regression model. The study's findings indicated that maximising shareholders' wealth necessitates faultless balance of loan and stock.Lawal (2014) used data from fifteen public traded commercial banks in Nigeria from 2007 to 2012 to examined factors that magnifies value of firms. Data was analysed using the ordinary least square method. The study results showed that debt plays substantial function in maximising the market worth of companies, whereas cost of capital has smallest impact on bank worth.

Hoque, Hossain and Hossain (2014) studied the effect of financial leverage on corporation's value. The authors used sample size of 20 manufacturing corporations quoted in Dhaka stock exchange for the period of 2008 to 2012. Data were analysed using descriptive statistics, pearson correlation, and the regression model. According to the findings, total debt to total assets, total debt to shareholders funds, and asset tangibility have strong and considerable influence on the value of a company.

Purpose of the Study

This research work sought to investigate the influence of capital structure on company's market value with precise reference to quoted industrial goods companies in Nigeria.

Research Hypotheses

The following hypotheses were formulated:

(i) There is no relationship between capital structure and market value of quoted industrial goods companies in Nigeria.

(ii) Financial leverage do not have substantial influence on market worth of quoted industrial goods companies in Nigeria.

Methodology

For the period 2000 to 2019, secondary data that acquired from financial statements of sampled quoted industrial goods companies in Nigeria were employed. The population of this research work consists of all the twelve companies under industrial goods sub-sector in Nigeria stock exchange. Based on availability of data eight companies with adequate financial records were used as sample for this study. The study employed both statistical and econometric techniques to analyse the data collected. Econometric techniques used are panel data regression techniques of pooled OLS, fixed effect and random effect models. The three models were used in order to establish the most powerful among them. The F-statistics and R-square values were used to determine whether the unrestricted (fixed effect and random effect) model is better than restricted pooled OLS model. Furthermore, Hausman test result utilised to show whether fixed effect model estimator has higher explanatory power than random effect model or vice verse.

In line with past empirical studies (Aggarwal & Padham, 2017; Chowdhury, 2015; Igbinovia & Ogbeide, 2019; Okeke & Okeke, 2019; Olokoyo, 2013; and Sarakiri, 2020). Tobin-Q (TOBQ) used to measure firm's value. Debt-Equity Ratio (DERA), Total Debt to Total Assets (TDTA), Interest Coverage Ratio (ICRA) and Financial Leverage Multiplier (FLMP) used to measure capital structure. Profitability (PROF), Tangibility (TANG) and Growth (GRTH) were used as control variables.

Model Specification

This study modified and adopted econometric models of Dhananjaya (2017); Ibrahim (2017); Lawal (2014) and Raheel (2013) to investigate the impact of debt-equity management on company's worth of quoted industrial goods companies in Nigeria. This study model is expressed as:

TOBQ = f (DERA, TDTA, ICRA, FLMP, PROF, TANG, GRTH).....(i)

Model stated in econometric form would be:

$TOBQ_{it} = \beta_0 + \beta_1 DERA_{it} + \beta_2 TDTA_{it} + \beta_3 ICRA_{it} + \beta_4 FLMP_{it} + \beta_5 PROF_{it} + \beta_6 TANG_{it} + \beta_7 GRTH + \varepsilon_{it}$.....(2)

Where: TOBQ= Tobin-Q, DERA = Debt-Equity Ratio, TDTA = Total Debt to Total Assets, ICRA = Interest Coverage Rate, FLMP = Financial Leverage Multiplier, PROF = Profitability, TANG = Tangibility and GRTH = Growth, βo = Intercept of relationship in the model/constant, β_1-β_7 = Coefficient of each predictor variable, ε = error term, i = number of sampled firms, t = period or number of years covered by the study.

Results and Discussion

Descriptive Statistics

Table 1: Descriptive Statistics

Variables	Mean	Minimum	Maximum	Standard Deviation	Skewness	Kurtosis
TOBQ	0.137	-0.098	0.673	0.109	1.607	2.468
DERA	1.203	0.040	3.846	0.982	1.842	4.281
TDTA	0.601	0.047	1.592	1.369	2.615	5.823
ICRA	5.146	1.422	14.524	3.072	6.046	8.163
FLMP	22.716	4.290	56.975	11.252	3.-010	2.964

PROF	0.116	-0.015	0.793	0.189	-0.062	1.016
TANG	0,283	0.116	0.684	0.257	-0.291	1.989
GRTH	0.186	-0.561	0.345	0.162	1.443	2.436

Source: Authors' Computation, 2021

Table 1 above showed that mean value of tobin-q is 0.137, minimum value is -0.098 and highest worth is 0.673. Debt-equity ratio has average value of 1.203, with lowest worth of 0.040 and highest value of 3.846. Total debt to total assets mean value is 0.601, with smallest worth of 0.047 and highest worth of 1,592. Interest coverage ratio ranged from smallest value of 1.422 to largest value 0f 14.524, with mean value of 5.146. Financial leverage multiplier minimum and maximum values are 4.290 and 56.975 respectively, with mean value of 22.716. The range of profitability is from -0.015 to 0.793, with mean value of 0.116. Tangibility average value is 0.283, with lowest worth of 0.116 and highest worth of 0.684. Growth showed a smallest value of -0.561 and largest worth of 0.345, with mean value of 0.186. The standard deviation of most of the variables for this study closed to their mean values except total debt to total assets and financial leverage multiplier. Among all the independent variables financial leverage multiplier has the highest standard deviation (11.252). This implied that it has lowest contribution to the dependent variable. Growth has the lowest standard deviation (0.162), this showed that it has highest contribution to dependent variable.

The skewness values of variables are close to 0 and 1 except total debt to total assts, interest coverage ratio and financial leverage multiplier that showed higher skewness, which is abnormal, other variables are normally distributed. Furthermore, skewness values also showed that tobin-q, debt-equity ratio, total debt to total assets, interest coverage ratio, financial leverage multiplier and growth are positively skewed. Profitability and tangibility are negatively skewed. Kurtosis values showed that all the variables are leptokurtic distributed. Also, tobin-q, financial leverage multiplier, profitability, tangibility and growth are normally distributed, since their kurtosis values less than 3. The debt-equity ratio, total debt to total assets and interest coverage ratio with kurtosis values more than 3, showed that they were abnormally distributed.

Correlation Analysis

Table 2: Correlation Matrix

Variables	TOBQ	DERA	TDTA	ICRA	FLMP	PROF	TANG	GRTH
TOBQ	1							
DERA	0.318	1						
	(0.039)							
TDTA	0.104	0.205	1					
	(0.082)	(0.159)						
ICRA	-0.064	-0.063	-0.047	1				
	(0.128)	(0.096)	(0.102)					
FLMP	0.026	0.211	0.154	-0.103	1			
	(0.094)	(0.131)	(0.041)	(0.125)				
PROF	0.543	-0.326	0.032	-0.215	0.084	1		
	(0.094)	(0.098)	(0.114)	(0.033)	(0.136)			

TANG	0.431	0.133	0.362	-0.015	0.158	-0.186	1	
	(0.003)	(0.038)	(0.035)	(0.118)	(0.041)			
						(0.038)		
GRTH	0.381	-0.062	-0.086	0.182	0.182	0.213	-0.613	1
	(0.028)	(0.103)	(0.116)	(0.021)	(0.031)		(0.094)	
						(0.002)		

Source: Authors' Computation, 2021

Correlation analysis is used to examine the relationship among the variables. Table 2 results showed that tobin-q has positive relationship with profitability and tangibility with correlation coefficient of 0.5433 (which is the highest) and 0.4311 respectively at 1% level of significance. It has favourable connection with debt-equity ratio, with correlation coefficient of 0.318 at 5% level of significant. The total debt to total assets and financial leverage multiplier has positive relationship with tobin-q with correlation coefficient of 0.104 and 0.026 respectively, at 10% level of significant. Tobin-q has a negative link with interest coverage ratio with correlation coefficient of -0.064 and not significant (p-value > 0.05). Correlations among the explanatory variables indicated that debt-equity ratio positively related with total debt to total assets, financial leverage and tangibility. Total debt to total assets positively related with financial leverage, profitability and tangibility. Debt-equity ratio negatively related with interest coverage ratio, profitability and growth. Since correlation coefficient values in the Table 3 are very small, thus, the study do not concern about problem of multicollinearity among the variables.

Panel Regression Model

Table 3: Results of Panel Data Regression

Independent variable	Restricted Pooled OLS Model	**Unrestricted Fixed Effect Model**	Unrestricted Random Effect Model
	Dependent Variable: TOBQ	**Dependent Variable: TOBQ**	Dependent Variable: TOBQ
Constant	3.415	**3.076**	3.081
	(4.063)	**(4.021)**	(3.952)
	[0.023]	**[0.033] ****	[0.027]
DERA	1.460	**1.238**	1.241
	(2.521)	**(2.712)**	(2.805)
	[0.029] **	**[0.037] ****	[0.041]
TDTA	0.913	**0.784**	0.891
	(1.348)	**(1.306)**	(1.379)
	[0.018] **	**[0.025] ****	[0.021] **
ICRA	-0.685	**-0.630**	-0.852
	(-1.848)	**(-1.628)**	(-1.804)
	[0.110]	**[0.136]**	[0.128]
FLMP	0.371	**0.305**	0.338
	(0.513)	**(0.452)**	(0.471)
	[0.190]	**[0.164]**	[0.156]
PROF	0.589	**0.403**	0.386
	(2.006)	**(1.895)**	(1.883)

	[0.037] **	**[0.003] ** **	[0.027] **
TANG	0.328	**0.354**	0.334
	(0.432)	**(0.128)**	(0.125)
	[0.091] *	**[0.082] ***	[0.084]
GRTH	0.663	**0.722**	0.681
	(2.865)	**(3.014)**	(3.021)
	[0.023]	**[0.018] ** **	[0.016]
R-Squared	0.653	**0.785**	0.675
Adjusted R- Squared	0.598	**0.713**	0.642
F-statistic	17.891	**26.452**	24.335
Prob. (F-statistic)	0.0019	**0.0001**	0.0013
Durbin-Watson	1.574	**1.976**	1.734
Hausman Test	**Chi-square statistic = 6.8137,**		**P-value = 0.0236**

Note: Figures in parentheses are t-values and figures in box brackets are p-values.
***** and * Indicate 5% and 10% level of significance..***
Source: Authors' Computation, 2021

Table 3 showed results of restricted pooled OLS model and unrestricted (fixed effect and random effect) models. F-statistics values and R-square values of unrestricted model (fixed effect and random effect) of 26.45, 24.33; and o.785, 0.675; which higher that F-statistic value and R-square value of restricted pooled OLS model of 17.89 and 0.653, indicated that unrestricted model (fixed effect and random effect) is better than restricted pooled OLS. The Hausman test results showed superior of fixed effect model over random effect model, since chi-square calculated is 6.8137 with p-value is 0.0236, which is less than 0.05, thus, rejection of random effect model and accepting fixed effect model.

Consequently, this research work interprets results of unrestricted fixed effect model. The results of unrestricted fixed effect model indicated that debt-equity ratio has a strong and substantial influence on tobin-q (firm's value) with β-value of 1.238 and p-value of 0.033. This implied that increase in debt-equity ratio increase companies' market worth of listed industrial goods firms. This outcome consistent with research works of Chauhan (2015); Mule, Mukras, and Nzoioka (2015), and Setiadharma & Machali (2015). (2017). The coefficient of total debt to total assets is positive and significant related with tobin-q firm's value variable, with β-value of 0.784 and p-value 0.025 respectively. This indicated that upwards move in total debt to total assets, rises market value of sampled firm's. This result corroborated research works of Al-Taani (2013), Garima (2013), Hosque, Hossain & Hossain (2014), Olokoyo (2013) and Raheel (2013).

The interest coverage ratio has negative but insignificant influence on firms' value, since β-value is -0.630 with p-value of 0.136. The negative relationship is consistent with the studies of Hoque, Hossain & Hossain (2014) and Ogbulu & Emeni (2013). Financial leverage multiplier has minor influence on company's security worth with β-value of 0.305 and p-value of 0.164. This finding supported outcomes of Dada & Ghazali (2016), Ibrahim (2017) and Igbinovia & Ogbeide (2019).Profitability, one of control variables has a positive and significant relationship with firms' value, with β-value of 0.403 and p-value of 0.031. This implied that increase in profitability stimulates firms' worth. This is in support of the studies

of Bolte & Truve (2014), Chauhan (2015) and Kodongo, Mokoaleli & Maina (2015). Tangibility has a favourable but low substantial effect on firms' market worth with β-value of 0.354 and p-value of 0.082 (significant at 10%). It implied that efficient use of tangible assets by the sampled firms enhanced the firms' value. This is in agreement with the studies of Aggarwal & Padhan (2017), Chechet & Olayiwola (2014), Hoque, Hossain & Hossain (2014) and Igbinovia & Ogbeide (2019). Growth also has a favourable and important connection with firms' value, with β-value of 0.722 and p-value of 0.018. This is in line with the study of Aggarwal & Padham (2017) and Lawal (2014).

In addition, the R-square value of 0.785 showed that more than 78 percent of the systematic variations in the sampled firms' value explained by combined explanatory and control variables. Also adjusted R-square of 0.713, implied that the model has better goodness of fit. Durbin-Watson value of 1.976 indicated that there is no autocorrelation problem in the sample data and the model reliably good for policy decisions. The F-statistic of 26.450 with probability of 0.0001, showed that collectively all the independent and control variables have significant impact on firms' value (tobin-q). This is consistent with the studies (Bolte & Truve, 2014; Chauhan, 2015; Chechet & Olayiwola, 2014; Dada & Ghazali, 2016; Sarakiri, 2020 and Setiadharama & Machali, 2017).

Conclusion

This research work investigates the impact of financial leverage management and other influencing variables on companies' market worth of quoted industrial goods companies in Nigeria. Data used were obtained from financial statements of sampled eight quoted industrial goods companies on Nigeria stock exchange for period of 2000 to 2019. Capital structure measured by debt-equity ratio, total debt to total assets, interest coverage ratio and financial leverage multiplier, while profitability, tangibility and growth are control variables and firms' value measured by tobin-q. Regressionresults of the study showed that fixed effect model is better than pooled OLS and random effect models. The fixed effect model results revealed that debt-equity ratio, total debt to total assets, financial leverage multiplier, profitability, tangibility and growth have significant impact on firms' value. However, interest coverage ratio has a negative and insignificant impact on firms' value of sampled listed industrial goods companies in Nigeria. Collectively all capital structure management variables and control variables considered in this study have strong and substantial influence on tobin-q (firms' value). Conclusively, capital structure has positive and substantial effect on companies' market worth of quoted industrial goods companies in Nigeria

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Recommendations

Based on findings, this research work recommends that management of quoted industrial goods companies in Nigeria should continue to maintain the existing or further increase their debt-equity ratio, total debt to total assets, profitability and growth, since these variables have strong and substantial influence on their market value. Furthermore, management of sampled companies should institute a perfect and efficient capital that will minimise the cost of capital, improve firms' market value and maximise shareholders' wealth.

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