Debt Financing and Growth of Quoted Manufacturing Firms in Nigeria

*Ariyibi Mayoma Ebenezer**

*Oyakhilamo Tolulope Williams***

*Asogba Israel Oludare****

Submitted: *01.05.2021* ***Accepted:*** *02.07.2022* ***Published:*** *01.11.2022*

Abstract

The study examined the impact of debt financing on the growth of manufacturing companies in Nigeria within 2011 to 2018. The study employed the ex-post facto research design. Panel regression technique was employed for the analysis, but Hausman test was used determine which model is actually accurate for inference drawing among fixed and random models. The findings based on the random effect revealed that LTD (Long-term debt) has a negative significant effect on SG (Sales growth) at (β= -3.37, P<0.05), STD (Short-term debt) has a positive significant effect on SG (Sales growth) at (β= -0.08, P<0.05) and ROE (Return on equity) has a negative insignificant effect on SG (Sales growth) at (β= -0.24, P>0.05). The study recommended that firm can mix the periodic debt components of short-term and long-term debt in its capital structure, because of the benefit of tax shield inherent in the postulation of the static-trade off theory, but must also make the sure interest payment on debt does not affect the profitability status and growth of the company. Business enterprises can use debt, as it offers the potential to increase the volume of their operations and increase the average return on their equity. Few studies have been able to investigate the influence of sales growth on the debt exposure of the manufacturing companies, knowing full well that sales in directly proportional to increase in revenue.

Keywords: Debt Financing; Long-term debt; Short-term debt; Growth; Firms; Nigeria

*

**Olabisi Onabanjo University, Nigeria, ariyibimayowa@gmail.com,*

*** Olabisi Onabanjo University, Nigeria, brainwilly1@gmail.com,*

**** Olabisi Onabanjo University, Nigeria, asogbaisreal@gmail.com*

JEL Classification: G31, G32, C5

1. Introduction

The financial manager and the strategic level of any organization are faced in taking some cogent investment and financial decision which is very coherent in the continuity and survival prospects of a corporate entity. The corporate entity is a financial body that is saddled with the prospects of maximizing scarce funds and effectively utilizing such funds to improve the corporate overall NPVs (Net present value) generated from good investment decision. But this investment decision can push the managerial level in determining which capital component will drive the proposed positive NPVs identified by the organization. Moreover, avenue to source for funds in a corporate organization varies according to the character or attribute of the company's assets, the seasonal and cyclical fluctuation in the business volume, its level of growth, its size, and other operations which influence its position as a potential borrower. These factors also determine the capital structure of the organization, shifting the managerial and financial manager in choosing the mix between equity and debt in financing, its operation (Adam, 2014).

In today's modern world, capital structure is very germane in determining the growth and value of a company in terms of improvement in sales and assets. So it's left with the managerial or strategic level to determine a strategy in the mix between debt and equity which in the long-run would determine sales growth and stimulate value in terms of book based value and market-based value. Capital structure is the openness to debt and the intrinsic attribute of equity to finance the operation of an organization. It is a financial policy that determines the actual profit and growth of a firm after interest and expenses have been deducted from the profit generated through sales (Damodaran, 2001). Also, it is the managerial strategy that influences risk and returns which are the driving force behind any investment phenomenon (Pandey, 2010).

In fact, the capital structure and company's growth is important for any firm because the progress and performance of any company depend on its growth and that, of course, requires capital from any preferred capital giver or investor (Ajao & Inyang, 2012). Also growth is an intrinsic phenomenon is determining continuity of a firm. Growth is a multi-faceted phenomenon that connotes revenue generation, value addition, and expansion in terms of the volume of business. It can also be defined as the improvement in market position, quality of

product and customer goodwill, which is stimulated through an accurate strategic decision that is attributable to the business policy used in the internal environments of the organization.

In the same vein the debt component in the financial structure of a company is also attached with the problem of repayment at a particular price of money, which the company in the long-run is engrossed with the capability of efficient utilization of the debt ratio in the overall financial structure. Various studies like Onaja & Ovayioza (2015), Racheal, Chelichi and Raymond (2017), Aziz & Abbas (2019), Muhugia (2013), Dube (2013), Tauseef, & Lohano and Khan (2015), Onchong, Muturi and Atambo (2018), Radhe, Pradhan, and Khadke (2017), Asare and Angmor (2015), Harelimana (2017), Olufunso, Herbst and Lombard (2010), Akoto and Vitor (2014) have investigated into the influence of debt oriented capital on performance, but few studies have been able examine the period horizon of such debt components on the growth characteristics of a firm. Knowing fully well that the classes of debt is horizon centric in terms of sourcing and servicing which has the inmate capacity to determine the growth (sales and asset growth) level of a routinely based firm in terms of goods and services it render's to its customers.

Moreover, debt financing has for a long period being a common phenomenon in corporate finance and the corporate world all around the globe, because of the tax-saving benefit to the organization and the ability to postpone consumption from the perspective of the debenture holders to the organization. It is a financial pathway that gives a corporate organization the opportunity of filling financing deficits due to lack of enough internal resources to fund its positive NPVs and current or daily obligation to keep the organization going (Dare & Sola, 2015). In financing or sourcing for capital, a firm is open to source capital either internally, externally (equity/preference shares) or through debt (Corporate bond). The financial policy implored in an organization directly influences the price of money, uncertainty and share dynamics on the market floor. While Myers (2001) agrees that there is no universal theory on the debt to equity choice. He, however, notes that some theories attempt to explain the amount of debt in the capital structure. He cites the tradeoff theory which advocates for debt uptake by seeking debt levels that balance the tax advantages of against the costs of possible financial distress. The pecking order theory asserts that firms will rather borrow than issue equity when all internal cash is not sufficient to fund capital expenditure (Myers, 2001). This is because debt financing has a non-dilutive effect on the ownership stratum of the shareholders.

However, some of the reason for the inclusion of debt in the financial components of the blue-chip companies is the cheap source of finance as compared to equity which tends to increase the number of shareholders or equity holder in the organization, if that is the last resort for firms to finance their capital or fund unavailability. In the real world or according to a financial analyst it expected that firms should incorporate loans up to a certain limit because if loan continues to increase (leverage or gearing), it is expected that interest on the loan will simultaneously increase which will harm the performance and growth of the company (Chowdhury & Chowdhury, 2010). If the company has no ability to pay off the debt then it should not take high level of debt. There should be an optimal capital structure which balances the tax-saving benefit and bankruptcy cost, but high leverage will cause the increase in cost of capital and ultimately decrease the value of the company (Ogbulu & Emeni, 2012)

Concurrently, Debt financing also has an advantage and a disadvantage on the growth of corporations and for its strategic investments (Asif, A., W. Rasool & Kamal, Y, 2011). According to Fama and French (2002), the benefits of debt financing include the tax-deductibility of interest and the reduction of free cash flow problems, while the costs of debt financing include potential bankruptcy costs and agency conflicts between stockholders and debt holders. Therefore, in making debt financing decisions, managers try to create a balance between the corporate tax advantages of debt financing and the costs of financial distress that arise from bankruptcy risks (Kraus and Litzenberger, 1973) and agency costs (Jensen and Meckling, 1976).

However, debt component in the financial structure posits the reduction of free cash flow problem (Fama & French, 2002) and cost of maintaining the debt include potential bankruptcy costs and agency conflicts between stockholders and debt holders. Due to the double-edged sword of the benefit and demerit of debt financing (Jensen & Meckling, 1976). Managers are compelled or responsible to maintain an optimal balance between the corporate tax advantages of debt financing and bankruptcy risk due to operational distress to remain floating in the industry (Kraus & Litzenbeger, 1973).

The argument for the existence of optimal debt financing level has remained a bane of concern in finance literature and studies have analyzed debt financing to determine whether optimal debt finance level really exist. An optimal debt finance level would be one that will minimize the cost of capital of an organization while maximizing the value and growth in the organization. According to Miller (2012) optimal capital structure can be determined by

balancing the bankruptcy costs and against tax-saving on debt financing. The accurate equity-to-debt mix remains a puzzle in corporations financial structure which has metamorphosed different scholastic view from the Modigliani & Miller theory, Trade-off theory and Pecking Order theory all these theories gives different understanding on the extent and mode of debt that should be accommodated in the financial structure of an organization. The rest of this paper is organized as follows. The second part discusses the literature review, the third part is dealing with methodology while part four presents the empirical results and the last part concludes.

2. Literature Review

2.1 Conceptual Review

Capital Structure is the effectiveness of the firm in combining equity and debt in its financial policy. The capital available to corporation can be divided into equity and debt. Under the firm capital structure, the firm is characterized with bank credit, market capitalization which has its own merit and demerits, but play a germane role in the firm in determining a perfect capital structure that attributes a favorable risk and return components for the different classes on shareholders attached to the firm in terms of their cash. The apex and external medium of fund for a corporate entity is equity capital and debt capital. The equities are referred to the owners of the firms that receive dividend from the yearly accrued profit after all other interest holders have been serviced.

Debt is phenomenon that carries different connotation looking from different angle of an individual or a corporate organization. It can be termed has money owned to a creditor in terms of an individual but corporate term the creditor can be called a debenture holder having his money returned with interest in a specified period of time. It stands has a obligation to the party owing to fulfill its mandate. According to Swanson and Marshall (2008) debt is the activity of putting to use the ability to consume or purchase in the present to the future, in addition to earn due to time lapse. A firm can innovate and access debt financing in its operation through different means. They include i) Secured and unsecured debt; (ii) private and public debt and (iii) syndicated and bilateral debt and other mode of debt that features the identification of the term debt above (Ajao & Inyang, 2012). Pandey (2005) illustrate the debt capacity of firm to be the amount and viable capacity a firm can attract and retract back to the creditors with interest at the end of a financial year, still having the capacity to sustain its market share. Debt stimulate

the book value of a firm because it disallows managers from wasting resources according to Denis and Denis (1998), but of course this is only minute among the surrounding argument. Kaplan (1998) pushes the argument further by depicting that debt financing induce the pressure on managers to efficiently manage the funds of the firm, to the ability of servicing the debt and also improve the current assets in the financial structure, so that they would be worth more if intended to be sold. They both opined that a firm with high expected future earning can enlarge it taste for more debt as means of enjoying the tax- saving bracket from the corporate earnings.

Debt financing is the position when a company source for fund outside the internal environment of the firm to be paid back at a stipulated future date with interest. Debt financing can be form of a secured and unsecured loan. A loan is used either to finance working capital or acquisition of asset. Organization employs debts in their operations due to the fact that debt aid to improve return on equity through increase in the volume. This proposed increased can only be visible when the rate of return on debt is lower that rate of return on investment (Watkins, 2002). Firms subject their financial structure to debt in-order to improve turnover and enhance profit. Debt financing can only be beneficial when corporate taxable earnings and free cash flows are predictable and large. The use of debt becomes costly and problematic when the firm cannot cover its interest, it is referred to as financial distress (Robichet and Myers, 1965). To Myers (1997) as firms adds debt to its financial structure it will make firms to add value through the projects its engage itself with so has avoid the ability to service debt. Debt have the capacity to prevent firms from making good investment (Myers and Lambrecht 1977). It is very important that a optimal level of debt must be determined to reduce the cost of under-investment which has a long-run negative effect on the firm.

Growth can be given different connotation, but it looks beyond just financial performance of an organization. Growth combines the non-financial and financial aspect of the organization. Growth can be in terms of increase in terms of volume of business, value creation and addition and revenue generation. The non-financial parameters include market position, goodwill of the customer and quality of the product (Berzkaline, 2012).

2.3 Empirical Review

Aziz & Abbas (2019) investigated into relationship between debt financing and firm performance. The study area is Pakistan where fourteen (14) sector was employed for the study. The secondary date was sourced from the financial statement of the companies listed on the Pakistan Stock Exchange within a time period of 2006-2014. The study revealed that debt financing has a significant negative effect on firm performance in Pakistan. It is recommended that companies should rely on the internal sources of finance to execute it project and operation because reliable and cheap due to the Pakistan environment.

Onchong, Muturi and Atambo (2018) examined inot the impact of debt financing on business financial performance. The study employed sixty (60) firms listed on the Nairobi Security exchange that have debt component in their capital structure. The independent variable includes long-term debt ratio (LTDR), short term debt ratio (STDR) while the dependent variable which is the financial performance includes profit margin, liquidity ratio, and return on asset (ROA). The secondary date was sourced from the financial audited statement of the firms within 2009-2012. The findings revealed that return on asset suggest return on asset suggest that a unit increase of short term debt reduces return on asset by 0.1%. A unit level increase in short-term debt will reduce the profit margin by 1.05%. The liquidity ratio response to a unit increase in short term debt ratio leads to a decrease of liquidity ration by 0.838. It therefore recommended that debt financing have the intrinsic capacity to influence firm performance, noting the ability to monitor ineffectiveness from the managers of funds.

Racheal, Chelichi and Raymond (2017) researched into the influence of financial leverage on food production and firm's financial performance companies in Nigeria. The proxied the performance in terms of earning per share, return on equity, and return on asset. The ex-post facto research design was used were the data was obtained from the financial statements of the firm within 2009-2014. The Statistical Package for Social Sciences (SPSS) version 2.0 was used to test the formulated hypothesis. The findings showed that financial leverage has significant effect on earnings per share and insignificant effect on return on assets and equity. It therefore recommended that among other things that the amount of debt finance in the financial mix of the firm should be at the optimal level in order to ensure the firms' assets are utilization appropriately.

Jeleli and Olayiwola (2017) investigated the effect of leverage on firm performance. This study was carried out on Chemical and Paints firms listed on the Nigeria Stock Exchnage. The sample size of three firms was selected from the total nine firms listed on the sector. The time frame of

(10) ten years from 2000-2009 was employed. The Ordinary Least Square (OLS) was used has the technique of the study, while the secondary data was drawn from the Nigeria Stock Exchange Fact Book and financial statement of the firms. The dependent variable include (ROA) while the independent variable is the Equity (EQT) and Debt ratio (DR). The study revealed that equity and debt ratio has a positive significant and negative insignificant effect on firm performance.

Foyeke, Olusola, and Aderemi (2016) examined the influence of financial structure on profitability of manufacturing companies in Nigeria. The secondary data was sourced from the financial statement of the firms. The STATA Package was used where the spearman's rank, correlation and regression technique was executed on. A sample size of twenty-five companies quoted on the Nigeria Stock Exchange within the period of 2008-2012. The findings of the study depicted that equity has a positive significant relationship with firm profitability of manufacturing companies in Nigeria. It is recommended that managers should place emphasis on the facilitation of equity capital and encourage manufacturing companies by reducing the cost of debt which the firms have exposed themselves into.

Gamis and Khatiwada (2016) examined into the effect and relationship between debt, productivity and firm-level perspectives. The study was carried due to the scarcity in literature in studies that employ micro-data between the relationship between finance and economic growth. The study examines the influence of financial development on growth using the firm-level data. The study covers over 100 countries span close to 30 years (1986- 2014) revealing that firm-level leverage can influence productivity, association strength reduces employment in the firm. Also the aggregate leverage in a country has a negative impact on firm productivity. Furthermore, given the potential issue of endogeneity, the study examine the impact of leverage on expected and unexpected components of productivity, the results show that leverage is positively associated with the unexpected component of firm productivity, thus providing evidence against reverse causality

Nyamita Garbharran and Dorasamy (2016) investigated into factors influencing debt financing decision of corporations. The study combined the theoretical, empirical and methodological model of enquiries in the study. Over the past half-century, there has been an increasing interest on identifying the factors influencing debt financing within corporations. Based on available literature, both from developed and developing economies, this literature review paper examined the factors influencing debt financing decisions within corporations. Applying

desktop research methodology, the paper used a three-thronged approach: theoretical, methodological and empirical. The theoretical approach reviewed the key theories proposed with respect to corporations' debt financing decisions. The methodology approach helped in identifying the common applicable conceptual models and the empirical findings related to the factors affecting debt financing of corporations. The factors identified were both firm-specific and macroeconomic factors, and the empirical findings showed either positive or negative relationship results.

Tauseef, Lohano, and Khan (2015) investigated into the relationship between debt financing and corporate financial performance. The secondary panel data was sourced from the financial statements of the firm from 2003 -2008 which where the 95 textile companies in Pakistan. The result depicts that a linear relationship exist between return on equity and debt-to-asset ratio. Showing that when the debt to asset ratio increases the return on equity also increases until debt optimal level is attained, then a decreasing begins. The optimal debt-to-asset is estimated at 56%. The firm's sales growth has a significant positive effect on return on equity and insignificant effect on firm size.

Akoto & Victor (2014) examined into the determinants of debt policy of manufacturing firms listed in Ghana. The secondary data was sourced from seven listed firms in Ghana within 2000-2009. The panel regression technique was employed. It was observed that manufacturing firms in Ghana employ 17% equity and 83% debt to finance their financial operations within a calendar year. In which the debt component is divided into 46% long term debt and 37% short term debt. It was observed that the firms tends to admire the short-term debt so has to guard against the distress occurrence in long term debt or deficiency. The study also finds a positive and statistically significant relationship between total debt and asset structure but a positive and insignificant relationship between total debt and liquidity. It recommended that profitability and size have a statistical and positive association with total debt in the firms

Muhugia (2013) investigated into the impact of debt financing and firm profitability. The descriptive design and census method of all the existing 43 commercial banks. The Pearson Correlation was used on the data that within 5 years, which are 2008-2012. The study revealed that there exist a positive relationship between profitability and short-term debt knowing fully well that short term debt is less expensive than long term debt increasing it with a low interest rate will lead to stimulating the profit level. A negative relationship is established between

(LDA) long term debt and performance. It is recommended that banks should go for short-term loans since avoiding bad capital structure is germane.

Cole and Sokolyk (2012) examine the debt financing, survival, and growth of Start-up firms. The study analyzes how different forms of debt financing at the firm's start-up affect subsequent firm outcomes. We find that, after three years, firms using debt at start-up, in particular, business debt but not personal debt are significantly more likely to survive and to achieve higher levels of revenues than other firms. We provide evidence that superior outcomes are attributable not only to the selection of better-quality firms by bankers but also to subsequent monitoring by the firms' bankers. We also find that better-quality start-ups are more likely to use credit, and are more likely to use business rather than personal credit.

Olufunso, Herbst, and Lombard (2010) examine the investigation of the usage of debt on the profitability of small and medium scale enterprises. To achieve the objective, the research hypothesized that the usage of debt has a negative impact on the profitability of SMEs. The research further hypothesized that SMEs have a difficulty in accessing debt finance from commercial banks. The study is important because SMEs, despite their contributions to the South African economy, have not been given due attention as research on corporate finance has been biased towards large firms. The results indicated that the usage of debt has a significantly negative impact on the profitability of SMEs. The results also indicated that SMEs have difficulties accessing debt from commercial banks. Lastly, the study recommended some measures that are expected to improve the accessibility to debt and reduce the cost of debt to SMEs. These measures among others include reduction in interest rates, awareness programmers by the banks, more bank competition (specifically commercial banks that are focused on lending to SMEs) and training of the owners of SMEs in the areas of writing business plans.

3. Methodology

The data used for this study is mainly panel data from 2011- 2018 which were obtained from the financial statement of selected manufacturing companies in Nigeria. Growth is represented by SG (Sales growth) which is the dependent variable while the independent variables are LTD (Long-term debt), STD (Short-term debt) and ROE (Return on Equity). The study makes use

of the inferential analysis with the Pooled Effect Model, Fixed Effect Model and Random Effect Model and Hausman Test was used as the decision criteria.

3.1 Model Specification

The model for this study was adapted from the work of Yinusa, Somoye, Alimi & Ilo (2012) and Foyeke, Olusola & Aderemi (2016).

The model for this study is therefore specified below to examine the impact of debt financing on the growth of manufacturing companies in Nigeria which is explained as follows:

$SG_{i,t} = f(LTD, STD, ROE,)$.....1

$SG_{i,t} = (\alpha_0 + \beta_1 LTD_{i,t} + \beta_2 STD_{i,t} + \beta_3 ROE_{i,t} + \mu_t)$.....2

Where:
SG= Sales growth at time t
LTD= Long-term debt at time t
STD= Short-term debt at time t
ROE= Return on Equity at time t
U= Disturbance term/White noise at time t
i= nth term
α = Intercept
$\alpha_1 - \alpha_6$ = Coefficient of the Independent Variables

Table 1. *Variables description and measurement*

Type of variables	Variables	Measurement/Justification
Dependent	SG	It is the percentage increase in the turnover of a firm within a specified period. it is calculated by Log differential of Turnover or (Net sales$_1$- Net Sales$_0$)/ Net sales
Independent	LTD	It is the liabilities the firm is opened to that is beyond a calendar year. it is calculated by Long-term debt/Total assets. Foyeke, Olusola & Aderemi (2016)
	STD	It is the liabilities the firm is exposed to that is within one calendar year. (Short-term debt/Total Asset)
	ROE	It is the overall return on investment of equity given by shareholders. It is calculated by PBIT/Shareholder's fund

Source: *Authors Compilation, 2020*

Table 2 *Variables, Denotations, and Expected Signs*

Variables	**Sales growth**	**Sign**
Long-term debt	**Significant**	**Positive**
Short-term debt	**Significant**	**Negative**
Return on Equity	**Significant**	**Positive**
Total Debt	**Significant**	**Negative**

Source: *Authors Compilation, 2020*

4. Results and Discussion

This part of the paper presents the correlation matrix, Pooled, Fixed and Random Effect Model and Hausman Test.

4.1 Correlation Matrix

Table 3. *Correlation Matrix of the Data Set*

	SG	**STD**	**ROE**	**LTD**
SG	1			
STD	0.20	1		
ROE	-0.02	0.46	1	
LTD	-0.17	-0.33	-0.13	1

Source: Authors compilation, 2020

Table 3: above depicts that SG (Sales growth) has a positive relationship with STD (Short-term debt) and a negative relationship with ROE (Return on equity) and LTD (Long-term debt).

4.2 Panel Regression Results

Variable	**Pooled**	**Fixed**	**Random**
C	-0.1133 (0.7450)	0.7178 (0.2263)	0.0533 (0.8879)
LTD	-0.9085 (0.0198)*	-3.2726 (0.0428)*	-1.0968 (0.0618)**
STD	1.0844 (0.0856)**	0.0810 (0.0318)**	1.0284 (0.0219)*
ROE	-0.2203	-0.2409	-0.2371

	(0.2542)	(0.2836)	(0.2217)
R^2	0.3700	0.2644	0.1725
Adjusted R^2	0.3333	0.2315	0.2344
Durbin Watson	2.1797	2.0673	2.2222
F-Statistics	1.907172	1.1356	1.9385
Prob (F-statistics)	0.10354	0.0418	0.0304
Hausman Test	0.0585		

$p<0.05$*; $p<0.1$**

The pooled regression model results depict that LTD (Long-term debt) has a negative relationship with SG (Sales growth) of selected manufacturing companies and statistically significant to SG (Sales growth). It implies that a percentage increase in LTD (Long-term debt) will lead to a 0.9085 unit decrease in SG (Sales growth). STD (Short-term debt) has a positive relationship with SG (Sales growth) of selected manufacturing companies and statistically significant to SG (Sales growth). It implies that a percentage increase in STD (Short-term debt) will lead to a 1.0844 unit increase in SG (Sales growth). ROE (Return on Equity) has a negative relationship with SG (Sales growth) of selected manufacturing companies and statistically insignificant to SG (Sales growth). It implies that a percentage increase in ROE (Return on Equity) will lead to a 0.2203 unit decrease in SG (Sales growth).

The coefficient of determination using adjusted R^2 shows that the explanatory variables (LTD, STD and ROE) explained 37.00% percent variation in manufacturing growth rate. That is 63.00% is explained by other variables not included in the model. The overall statistical level of the model depicts that the model is not fit for forecasting giving the F-statistics of 90.71 and its probability of 0.1035 Since the p-value is higher than 0.05, hence we conclude that the model is statistically insignificant and brings about the acceptance of the null hypothesis. This means that long-term debt, Short-term debt and Return on equity have an insignificant effect on the growth rate of manufacturing companies.

The fixed regression model depicts that LTD (Long-term debt) has a negative relationship with SG (Sales growth) of selected manufacturing companies and statistically significant to SG (Sales growth). It implies that a percentage increase in LTD (Long-term debt) will lead to a 3.2726 unit decrease in SG (Sales growth). STD (Short-term debt) has a positive relationship with SG (Sales growth) of selected manufacturing companies and statistically significant to SG (Sales growth). It implies that a percentage increase in STD (Short-term debt) will lead to a

0.0810 unit increase in SG (Sales growth). ROE (Return on Equity) has a negative relationship with SG (Sales growth) of selected manufacturing companies and statistically insignificant to SG (Sales growth). It implies that a percentage increase in ROE (Return on Equity) will lead to a 0.2409 unit decrease in SG (Sales growth).

The coefficient of determination using adjusted R^2 shows that the explanatory variables (LTD, STD, and ROE) explained 26.44% percent variation in the manufacturing growth rate. That is 73.56% is explained by other variables not included in the model. The overall statistical level of the model depicts that the model is fit for forecasting giving the F-statistics of 13.56 and its probability of 0.0418 since the p-value is less than 0.05, hence we conclude that the model is statistically significant and brings about the acceptance of the null hypothesis. This means that long-term debt, Short-term debt and Return on equity have a significant effect on the growth rate of manufacturing companies.

The random regression model results depict that LTD (Long-term debt) has a negative relationship with SG (Sales growth) of selected manufacturing companies and statistically significant to SG (Sales growth). It implies that a percentage increase in LTD (Long-term debt) will lead to a 1.0968 unit decrease in SG (Sales growth). STD (Short-term debt) has a positive relationship with SG (Sales growth) of selected manufacturing companies and statistically significant to SG (Sales growth). It implies that a percentage increase in STD (Short-term debt) will lead to a 1.0284 unit increase in SG (Sales growth). ROE (Return on Equity) has a negative relationship with SG (Sales growth) of selected manufacturing companies and statistically insignificant to SG (Sales growth). It implies that a percentage increase in ROE (Return on Equity) will lead to a 0.2371 unit decrease in SG (Sales growth).

The coefficient of determination using adjusted R^2 shows that the explanatory variables (LTD, STD, and ROE) explained 17.25% percent variation in the manufacturing growth rate. That is 82.75% is explained by other variables not included in the model. The overall statistical level of the model depicts that the model is fit for forecasting giving the F-statistics of 93.85 and its probability of 0.0304 since the p-value is less than 0.05, hence we conclude that the model is statistically significant and brings about the acceptance of the null hypothesis. This means that long-term debt, Short-term debt and return on equity have a significant effect on the growth rate of manufacturing companies.

5. Summary

The study examined the impact of debt financing on the growth of manufacturing firms in Nigeria using panel data from 2011-2018. This study employed panel regression analysis (Pooled, Fixed & Random Effect Model), but Hausman test being the decision criteria test to determine the model which inference will be drawn from. The findings revealed from the random effect model that LTD (Long-term debt) has a negative relationship with SG (Sales growth) of selected manufacturing firms in Nigeria and statistically significant to SG (Sales growth) at 0.1%. STD (Short-term debt) has a positive relationship with SG (Sales growth) of selected manufacturing firms in Nigeria and statistically significant to SG (Sales growth). ROE (Return on equity) negative relationship with SG (Sales growth) of selected manufacturing firms in Nigeria and statistically insignificant to SG (Sales growth).The findings agree with the postulation of the pecking-order theory that debt is part of the source of capital that can be used in maintaining the continuity of the firm since debt will not warrant ownership being given to the debenture holder only interest will be given after every calendar year, the study also aligns with the study of Gamis & Khatunde (2016), Onchong, Muturi & Atambo (2018) and Tauseef, Lohano & Khan (2015). The firm should/can employ long-term debt in its capital/fund sourcing but make sure it well managed so it has not to grow above the equity status of the firm. The firm should make sure short-term debt is meet urgently so it has not to threaten the working-capital status of the firm, which can influence the asset growth and sales growth of the firm. The firm should not rely on a hundred percent of debt components to finance a firm because of it dangerous and can lead to knight takeovers. The firm can mix the periodic debt components of short-term and long-term debt in its capital structure, because of the benefit of the tax shield inherent in the postulation of the static-trade off theory.

References

Abor, J. (2008). Determinants of the capital structure of Ghanaian firms. Journal of Financial Economics, 43(5)782-798

Adam, M. H. M. (2014), Evaluating the Financial Performance of Banks using financial ratios-A case study of Erbil Bank for Investment and Finance. *European Journal of Accounting Auditing and Finance Research, 2*(2), 156-170

Agarwal, P & O'Hara, M (2006), Information risk and capital structure. Journal of Corporate Finance, 45(5)1123-1145

Ağca, S. & Mozumdar, A (2004), Firm size, debt capacity, and the pecking order of financing choices. Journal of Financial Review, 15(2)875-899

Ahmad, F., J. Haq, R. U. Nasir, M. Ali & Ullah, W (2011), Extension of determinants of capital structure: Evidence from Pakistani non-financial firms. African Journal of Business Management 5(28)11375-11385

Ahmadinia, H., J. Afrasiabishani & Hesami, E (2010), A comprehensive review on capital structure theories. The Romanian Economic Journal , 17(1)5-23

Ajao O. S & Inyang, U.E (2012), Determinants of capital structure in Nigerian firms: a theoretical review. eCanadian Journal of Accounting and Finance, 1(1)7-15

Alan, S. & Sheridan, T. (1985), An integrated approach to corporate risk management. Midland Corporate Finance Journal, Summer, 24(5)743-762

Allen N.B & Wharton, B.P. (2002), Capital structure and firm performance, a new approach to testing agency theory and an application to the banking industry. Wharton Financial Institution Centre Publication (available at berger@Frb.gov.accessed 10/02/12)

Amjad, S B. & Tufail S. (2012), Determinants of capital structure: what can be the determinants of capital structure of banking sector of Pakistan?. By proceedings of School of Business and Economics University of Management and Technology, Lahore, Pakistan

Arnold, G. (2007), Capital structure. New York; McGraw Hill Artmann, S., P Finter, & Kempf, A (2011). Determinants of expected stock returns: large sample evidence from the German market. Journal of Finance, 78(6)2135-2167

Asare & Angmor (2015), The effect of Debt Financing on Profitability. Adrri Journal Of Arts And Social Sciences Pissn: 2343-6891 Issn-L: 2343-6891. .2 (2), Published By Africa Development and Resources Research Institute.

Asif, A., W. Rasool & Kamal, Y (2011), Impact of financial leverage on dividend policy: empirical evidence from Karachi stock exchange-listed companies. African Journal of Business Management, 5(4)1312-1324

Aziz & Abbas (2019), The effect of Debt Financing of Firm Performance. Open Journal of Economics and Commerce. 2 (1), 8-15 ISSN:2638-549X

Baker, M & Wurgler, J (2003), Investor sentiment and the cross-section of stock returns. NYU Stern Department of Finance Working Paper Series 127

Baker, M & Wurgler, J. (2000), The equity share in new issues and aggregate stock returns. Journal of Finance. 55(12):2219-2257.

Baker, M.P. & Wurlger, J. (2002), Market timing and capital structure. Journal of Finance, 57(1)635-670

Bannier C. E. & Grote M. H. (2008), Equity gap?: which equity gap? on the financing structure of Germany's Mittelstand. Frankfurt School Working Paper Series No. 106

Beasley R.A., Myers S.C & Marcus, A.J (2007), Fundamentals of corporate finance. 5th ed. Boston: McGraw-Hill/Irwin.

Beattie, V., A. Goodacre & Thomson, S.J. (2006), corporate financing decisions: UK survey evidence. Journal of Business Finance and Accounting 33(9-10)1402-1434

Berger, .P, Ofek, .E & Yermack, D. (1997), Managerial entrenchment and capital structure decisions. Journal of Finance, 52(2)345-367

Berle, A.A & Means, G.C (1932), The Modern Corporation and private property. New York; Macmillan Press

Berzkalne, I (2012), Theories of optimal capital structure: assessment and application. New Challenges of Economic and Business Development. Riga, University of Latvia. 145-164.

Bhattacharya, S. (1979), Imperfect information, dividend policy, and "the bird in the hand fallacy. Bell Journal of Economics. 10(5):259-270. Billett, D., J Flamery & Garfinkel, H. (2001), internal funds, moral hazard, post-financing stock underperformance. Journal of Financial Economics. 37(9):2651-2669.

Binbergen, T.H, Graham, J.R. & Yang, I. (2007), The cost of debt. Journal of Finance, 69(4)567-584

Bolton, P. & Scharfstein, D. (1990), A theory of prediction based on agency problems in financial contracting. American Economics Review, 80(4)234-256

Boodhoo, R (2009), Capital structure and ownership structure: a review of literature. The Journal of Online Education, 8(12)112-136

Breman, M & Schwartz, E. (1978), Corporate income taxes, valuation and the problem of optimal capital structure. Journal of Business, 51(5)453-472

Brigham, E & Gapenski, L. (1996), Financial management. Dallas; The Dryden Press Brigham, E.F. (1995). Fundamentals of financial management. New York; McGraw Hill

Buhr, K.E., R. Cross & Liz Rainsbury, L (2005), Capital structure and financing choices: an Australian study. Unitec Institute of Technology 1-32

Chowdhury, A., Chowdhury, S.P. (2010), Impact of Capital Structure on firm's value: Evidence from Bangladesh. 3, 3. 111-122. Costs, and Capital Structure, *Journal of Financial Economics*, 3, 305-360

Damodaran A. (2001), Applied Corporate Finance. New York: John Willey and Sons, inc

Dare, F. D. & Sola, O. (2010), Capital Structure and Corporate Performance in Nigeria Petroleum Industry: Panel Data Analysis Journal of Mathematics and Statistics, 6(2): 168-173

Desai, M.A., F.C. Foley & J.J.R. Hines, (2003), A multinational perspective on capital structure choice and internal capital markets. Available from http://scholar.google.com/scholar?hl=en&q=

Dube, H., (2013), The impact of debt financing on productivity of small and medium scale (SMEs): A case study of SMEs in Masvingo urban. International Journal of Economics, Business and Finance, 1(10), 371-381, ISSN: 2327-8188 (Online).

Fama, E. F., & K. R. French, (2002), 'Testing Trade-Off and Pecking Order Predictions about Dividends and Debt', The Review of Financial Studies Vol. 15 (1), 1–33.

Harelimana (2017), The Effect of Debt Financing on Business Performance. Global Journal of Management and Business Research: C Finance:17 (2). Double Blind Peer Reviewed International Research Journal Publisher: Global Journals Inc. (USA).ISSN: 2249-4588 Print ISSN: 0975-5853.

International Journal of Economics and Management Sciences, 1(10),.81-96

ISSN 1993-8233.

Jensen M. & W. Meckling (1976), Theory of the Firm: Managerial Behavior, Agency

Kraus, A. & Litzenberger, R.H. (1973). A State-preference model of optimal financial leverage, The *Journal of Finance, 28 (4), 911-922.*

Muhugia (2013), Debt Financing of Firm Profitability of Commercial Banks in Kenya. A Business Research Submitted In Partial Fulfilment Of The Requirement Of The Degree Of Masters Of Business Administration Of The University Of Nairobi.

Myers, S. C. & Lambrecht, B. M. (1977), A Theory of Takeovers and Disinvestments". Journal of Finance, (62). 19. Obradovich.

Myers, S.C. & Majluf, N.S. (1984), "Corporate financing and investment decisions when firms have information that investors do not have". Journal of Financial Economics, 13: 187–221.

Ogbulu, O. M. & Emeni, F. K. (2012), Determinants of Corporate Capital Structure in Nigeria. International Journal of Economics and Management Sciences. 1, (10) 81-96

Olufunso, Herbst & Lombard (2010), An investigation into the impact of the usage of debt on profitability of small and medium scale enterprises. African Journal of Business Management Vol. 4(4), 373-381:Available online at http://www.academicjournals.org/AJBM

Onaja & Ovayioza (2015). the effect of debt usage on the performance of small scale manufacturing firms: *International Journal of Public Administration and Management Research (IJPAMR), 2(5), March 2015*. Website: www.rcmss.com. ISSN: 2350- 2231 (Online) ISSN: 2346- 7215.

Onchong, Muturi & Atambo (2018), Effects of Debt Financing on Business firm's financial performance. International Journal of School Science and Information technology II(VII) ISSN 2412-0294

Oni, T. O. (2013), Why do business fail in West Africa. Thesis submitted to the Department of Business, Seinajoki University of Applied Sciences.

Pandey, I.M. (2004), Financial Management. London: Mordem Printers.

Pandey, I.M. (2005), *Financial Management*. London: Mordem Printers.

Pandey, I.M., (2010), Financial Management. 10th ed; New Delhi: Vikas publishing House PVT Ltd.

Peel, M.J., & Wilson, N. (1996), "Capital structure and financial management.

Racheal, Chelichi & Raymond (2017), Leverage and Financial Performance. *European Journal of Research and Reflection in Management Sciences:* 5 (4) 2017 *ISSN 2056-5992*

Robert, G. T. (2012), An Introduction to Startup financing and a new approach to attracting capital resources. White Paper, retrieved from http://www.startupfactory.co/pdf/SUF_capital_fin.pdf on 14th May, 2014.

Smith, K. V. (1993), "State of the art of capital structure management" Financial Management, Autumn: 50-55.

Smith, M., Beaumont, & Begemann, E. (1997), "Measuring Association between Capital structure and Return on Investment", South African Journal of Business Management, Vol 28(1).

Soenen, L. A. (1993), Cash conversion cycle and corporate profitability. Journal of Cash Management, 13 (4): 53-58.

Tauseef, Lohano & Khan (2015), The effect of debt financing on corporate financial performance. Pakistan Business Review.