Debt Financing Measures and Financial Performance of Listed Industrial Goods Manufacturing Firms In Nigeria

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Abstract

This research paper investigated the relationship between debt financing measures and financial performance of listed industrial goods manufacturing firms in Nigeria. The research adopted the ex post facto design. A sample of seventeen (17) companies in the industry were selected and data collected for a period of ten (10) spanning 2010 to 2019. Data was collected from the audited annual financial statements of the sample companies. Data for the research consisted of those on debt financing measured in terms of short-term debt (STD); long-term debt (LTD), and total debt (TDT) financing. Financial performance was measured using return on assets (ROA) and net profit margin (NPM while firm size (FSZE) and firm age (FAGE) were included as moderating variables. After a series of preliminary and diagnostic tests - including ADF unit root test, and Hausman test - the Random Effects Model (REM) and system specified panel Estimated Generalized Least Squares (EGLS) method was selected as the appropriate technique for data analyses and test of hypotheses. The findings of the research revealed that: there is a non-significant positive relationship between short-term, and long-term debt financing and net profit margin; a negative and non-significant relationship between short-term and long-term debt financing and return on assets; a negative and significant relationship between total debt financing and net profit margin; and a positive and non-significant relationship between total debt financing and return on assets.The research thus concluded that debt financing has minimal effect on financial performance. It is thus recommended that managers need to acquire better knowledge on the optimal use of debt financing; companies desirous of extensively using debt financing must first shore-up their capital base. Finally, companies should ensure that they have viable investment options before applying for loan facilities.

Keywords: Short-term debt financing, long-term debt financing, total debt financing, net profit margin, returns on assets, industrial goods manufacturing industry.

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Background of the study

In spite of the dominance of the capital structure debate among both academic researchers and practitioners in the field of corporate finance over the last three decades, finding an optimal capital structure remains an indefinable concern (Rehman, Fatima & Ahmad, 2012). In particular, many modern-day firms are yet to find the optimum mix of equity and debt levels that maximizes shareholder value. Thus, capital structure refers to the way a firm finances its assets through some combination of equity and debt (Scherr & Hulburt, 2001). The financial mix of an organization has impact on the financial performance of such organization. Debt as one of the financial mix may have impact on the financial performance. When an organization employs more debt than equity, it is expected to pay interest to debt holders and prompt payment of debt is dependent on the performance of such organization.

An organization's to meet its obligations promptly both in principal anc interest repayment may dampen the enthusiasm of debt holders and become a de-motivator to provide more funding fir the firm in future. In the same vein, if the organisation uses more of debt than equity its financial performance will be adversely affected as a result of the source of financing decreasing and as such, there may be break-down in the overall performance of the organization (Kale, 2013). Companies may raise money from internal and external sources. They can raise money from internal sources by laughing back part of their profits, which would otherwise have been distributed as dividend to shareholders. Similarly, they can raise money from external sources by an issue of debt or equity. When a company issues shares, shareholders hope to receive dividend on their investment. However, the company is not obliged to pay any dividend. Because paying dividend is not compulsory, it is not considered to be an expense to the business. When a company borrows money by way of debt, it promises to make regular interest payment and to repay the principal (in essence; the original amount borrowed).

Financial leverage is a measure of how much firms use debt to finance its assets (Investopdia, 2017). A company can finance its investments by debt and/or equity. The company may also use preference capital (Pandey 2010). The rate of interest on debt is fixed irrespective of the company's rate of return on assets. The financial leverage employed by a company is intended to earn more on the fixed charges funds than their costs. As debt increases, financial leverage increases. The primary motive of a company in using financial leverage is to magnify the shareholders' return under favourable economic conditions. The role of debt financing in magnifying the return of the shareholders' is based on the assumptions that the fixed- charges funds (such as the loan from financial institutions and other sources or debentures) can be obtained at a cost lower than the firm's rate on invested capital (Rehman, Fatima & Ahmad, 2012).

Firm's performance is the measurement of what has been attained by the firm, which is an indicator of the good conditions for a period of time (Kale 2013). The objectives of measuring performance are to obtain very useful information about flow of funds, the uses of firm finances, their efficiency and effectiveness. Besides, the managers are able to make best decisions from the information on firm's performance (Almajali, Alamro & Al-Soub, 2012). The survival of the firm and its continuity often depends on its performance; most importantly its profitability which may be fueled by effective leveraging. Fund requirement (leverage) is not the same for all firms, the firm's asset, structure and system is a determinant of leverage, which is why this study is focused on Listed Industrial Goods Firms, as in Nigeria, they are the one most important sector of the economy. Thus it is important to determine if the use of leverage affects the performance

of industrial goods firms and to what extent.

Statement of the problem

Optimal capital structure is a critical decision issue for every financial manager (Atumwa, 2013; Azidah, 2017). This is because failure to put considerations regarding capital structure in making finacial decisions might lead to low profitability or bankruptcy. The review of literature on the effect of debt financing on financial performance of firms show that there are existing environmental and industry gaps, variable measurement gaps and openings in findings which are discussed in the following paragraphs.

The study of the effect of debt financing on financial performance of companies had received several attention in developing economies such as Malaysia, Nigeria, Pakistan, Kenya and Bangladesh. Existing studies in Pakistan are Rehman, Fatima and Ahmad (2012), Javed, Roa, Akram and Nazir (2015) and Shalid, Akmal and Mohmood (2016) In Kenya existing literature are those of In Langet, Chepkoeach, Shavulimo, Wacho and Thou (2014), Atumwa (2013), Mohammed (2016), Azidah (2017). In Jordan Aighusin (2012). In Nigeria Iorpev and Kwanun (2012), Innocent, Ikechkwu and Nnagbogu (2014), Akingunola, Olawale, and Olaniyan (2017)

In addition, the study on the effect of debt financing on financial performance of companies was conducted by numerous authors in various sectors such as Rehman, Fatima and Ahmad (2012), Javed, Roa, Akram and Nazir (2015), investigated Textile companies, Shalid, Akmal and Mohmood (2016) examined banks, In Langet, Chepkoeach, Shavulimo, Wacho and Thou (2014), Atumwa (2013), reviewed Tea companies, Azidah (2017), examined oil and gas companies Mohammed (2016) and Akingunola, Olawale, and Olaniyan (2017), non-financial companies, Iorpev and Kwanun (2012), examined manufacturing companies, Innocent, Ikechkwu and Nnagbogu (2014), analyzed Pharmaceutical companies, Aighusin (2012) examined consumer goods companies, while Ali (2016), and Jeleel and Olayiwola (2017) evaluated Chemical and Paint companies.

Empirical literature review showed mixed results on the effect of debt financing on Firms performance. The study of Karuma, Ndambiri, and Oluochi (2018) pointed that short and long term debt has a positive and insignificant effect on financial performance, Iorpev and Kwanum (2012) found that short and long term debt has negative and insignificant effect on financial performance, while Nwude, Itiri, Agbadua and Udeh (2016) found a negative and significant relationship between long term debt financing and Firms performance. Akingunola, Olawale and Olaniyan (2017) revealed that short term and total debt had negative and significant effect on financial performance. This study has identified the gaps in terms of environment, industry/sector and margin in findings, therefore, this study seek to examine the effect of debt financing on financial performance of listed Industrial goods companies in Nigeria.

Aim and objectives of the study

The overarching aim of this research paper is to evaluate the nature of the relationship between debt financing and financial performance of industrial goods companies in Nigeria. The specific objectives of the research are to evaluate:

i. The relationship between short-term debt financing and net profit margin of industrial goods companies in Nigeria.

ii. The relationship between short-term debt financing and return on assets of industrial goods companies in Nigeria.

iii.   The relationship between long-term debt financing and net profit margin of industrial goods companies in Nigeria.

iv.   The relationship between long-term debt financing and return on assets of industrial goods companies in Nigeria.

v.   The relationship between total debt financing and the net profit margin of industrial goods companies in Nigeria.

vi.   The relationship between total debt financing and the return on assets of industrial goods companies in Nigeria.

Statement of hypothesis

The following are the hypotheses drawn from the objectives of the research.

Ho_1:   There is no significant relationship between short-term debt financing and the net profit margin of industrial goods companies in Nigeria.

Ho_2:   There is no significant relationship between short-term debt financing and the return on assets of industrial goods companies in Nigeria.

Ho_3:   There is no significant relationship between long-term debt financing and the net profit margin of industrial goods companies in Nigeria.

Ho_4:   There is no significant relationship between long-term debt financing and the return on assets of industrial goods companies in Nigeria.

Ho_5:   There is no significant relationship between total-term debt financing and the net profit margin of industrial goods companies in Nigeria.

Ho_6:   There is no significant relationship between total-term debt financing and the return on assets of industrial goods companies in Nigeria.

Underpinning Theories

Several theories have been proposed to provide better insight into capital structure issues - especially regarding how debt financing affect financial performance of corporations. Some these theories include: agency theory, trade-off theory, and pecking order theory among others.

In order to resolve agency and risk-sharing problems in principal-agent relationships, agency theory prescribes two formal (and ideal) types of management mechanisms to govern these relationships (Rungtusanatham et al., 2007). One is outcome-based management mechanism. As the name implies, the outcome-based mechanism is predicated on agent's reward agents being based on measured performance outcomes (Ekanayake, 2004) - which can be observed abd verified by both parties. The outcome-based management mechanism emphasizes results regardless of how the agents achieve them (Choi and Liker, 1995). With this mechanism, it is in the interest of both parties that the agent act in the best interest of the principal as his/her reward depends on its. As such, the agent in this case the financial manager much ensures that the optimal financing decisions are taken. The other management mechanism is behaviour-based. When this mechanism is taken, principals can use behaviour controls to monitor agents' behaviours and efforts which otherwise are unknown to the principals.

Among the several tools the financial manager relies on to make the optimal financing (leverage) decisions is the trade-off theory which predicts that firms will seek to maintain an optimal

(target) capital structure by balancing the benefits and costs of debt (Modigliani and Miller, 1963; Stiglitz, 1972; Jensen and Meckling, 1976; Myers, 1977; Titman, 1984). According to the traditional (or static) trade-off theory, firms select optimal capital structure by comparing the tax benefits of the debt, the costs of bankruptcy and the costs of agency of debt and equity, that is to say the disciplinary role of debt and the fact that debt suffers less from informational costs than outside equity (Jensen and Meckling, 1976; Titman, 1984). The theory asserts that firms set a target debt to value ratio and gradually move towards it and any increase in the level of debt causes an increase in bankruptcy, financial distress and agency costs, and hence decreases firm value. Thus, an optimal capital structure may be reached by establishing equilibrium between advantages (tax advantages) and disadvantages (financial distress and bankruptcy costs) of debt (Karadeniz Karadeniz, Kandir & Balcilar, 2009).

Pecking order theory states that optimal capital structure does not exist as debt ratio occurs because of cumulative external financing requirements. Thus the primary determinant of a capital structure of an organization is the problem of asymmetric information between insiders and outsiders (Itiri, 2014). Pecking order theory does not recognize that there exists target leverage: where retained earnings comes first in terms of financing preference and equity, that is the stocks comes last in preference as far as financing of new investment is concerned (Bontempi & Golinelli, 2001). Basically, this theory suggest that firms will prefer utilize debt rather than equity to finance its investments (Nyamita, 2014). The theory of pecking order also suggest that most of firms with a high level of financial needs will probably end up with a very great debt ratio since managers do not prefer the issue of new equity considering the cost and time constraints (Al-Tally, 2014).

Debt Financing and Financial Performance: Empirical literatures

Imeokparia, Adesanmi and Fadipe (2021) conducted a comparative study of the effect of financial leverage on financial performance of deposit money banks and manufacturing companies in Nigeria. Using a sample of ten deposit money banks and ten manufacturing companies from the NSE on the basis of accessibility of data covering the period 2009 to 2019. Financial performance was measured using return on assets (ROA) while total debt to equity ratio (TDER) total debt ratio (TDR), and interest cover ratio (ICR) were used as measures of financial leverage. Pooled (OLS) regression was used to analyse data - findings revealed that total debt ratio and total debt-equity ratio had a strong negative relationship with financial performance DMB; Total debt ratio had an insignificant positive effect on financial performance while Total debt to equity ratio was negatively significant on financial performance manufacturing companies. The study concluded that leverage is an important determinant of financial performance in both DMBs and manufacturing companies and therefore suggested that DMBs be conscious of excessive use of debt in order to improve financial performance and manufacturing firms utilize debt optimally to finance assets in so as to take advantage of debt as stated in the trade-off theory.

Edore, and Ujuju (2020) investigated the effect of financial leverage on firms' value in Nigeria. Pearson correlation coefficient and OLS regression analysis techniques were used to test the hypotheses. Findings indicated that long term debt had a significant positive effect on the value of the sampled companies' financial performance. Medium and short term debts had a significant positive influence on firm financial value. Findings further revealed that the use of leverage enhances the value of the firm. Thus, it was suggested that firms should continue financing operations with long, medium and short term debts when the need arises in order to enhance firm

value.

Onuora (2019) examined the relationship between leverage and financial performance of selected financial institutions in Nigeria for the period 2005 to 2017, using debt- equity ratio (DER), debt ratio (DR) as indicators for financial leverage and return on equity (ROE) as proxy for profitability performance. Data was sourced from the financial statement of selected banks. The result from the correlation analysis and OLS regression revealed that there is significant negative relationship between ROE and debt- equity ratio; ROE had a negative and insignificant relationship with debt ratio. It was concluded that DMBs in Nigeria are highly leveraged. The study thus recommended that an appropriate debt- equity mix be adopted by DMBs in addition to increasing their asset position to enable them improve their financial performance, survive failures and remain competitive within the industry.

Karuma, Ndambiri and Oluoch (2018) sought to investigate the effect of short-term debt, long-term debt, interest rates and corporation tax rates on the financial performance of manufacturing firms listed in Nairobi Securities Exchange during a five year period of 2013-2017. The study employed use of multiple linear regression models. The results showed that accounts payable was found to be significant to ROA while bank overdraft was found not to be significant to ROA and debentures was found to be significant to ROA. Bank loan and interest payments were found not to be significant to ROA while Expenses deductibles were found not to be significant to ROA with a significance level of 0.480 which was greater than 0.05.

Ezeduru, Olajide and Ango (2018) examined the effect of financial leverage on the performance of quoted Manufacturing firms in Nigeria. Data was collected from a sample of 92 manufacturing companies listed on the Nigerian stock exchange (NSE) from the period 2007 to 2016. Return on Equity (ROE), Return on Asset (ROA) and Return on Investment (ROI) were adopted as performance measures while Debt/Equity ratio represented financial leverage. OLS regression method was used for data analysis. Findings revealed that Debt to equity ratio had insignificant effect on the performance of manufacturing firms while a positive relationship existed between financial leverage and Debt to equity ratio. It was recommended that management of manufacturing firms work on improving their financial leverage in order to increase Debt equity ratio such as return on assets, returns on equity and return on investment and earnings from their business transaction.

Ruth (2017) studied on leverage (proxy with short term debt) and financial performance: evidence from Nigerian food firms from 2009 to 2014 adopting ex post facto research design. The study made use of six food manufacturing companies in Nigeria, data was collected from annual reports and financial statements of the six companies and analyzed on SPSS. The findings are that short term debt has no significant effect on EPS and also that short term debt has significant positive effect on ROE. The population of the study was not stated, however a sample of only six food manufacturing companies is too small to arrive at meaningful conclusion concerning food manufacturing companies in Nigeria, also the technique used in arriving at the sample was not stated in the study. The study concludes that debt financing has a significant impact on the profitability of firms. The study therefore recommends that Long term debt should be more considered.

Onyenwe and Glory (2017), examined the effect of leverage on firms' performance from 2006 – 2016 (10 years). The study was conducted using Ex post facto research design. It covered 15 commercial banks listed on the Nigerian stock Exchange out of which 13 were sampled. The

sampled firms were selected because of availability of their financial statements for the period under review. Data was collected from financial statement and they were analyzed using ordinary least square regression technique. Their findings are that the use of debt improves managerial efficiency, as managers will have to ensure more profit is made to pay interests and still be profitable. Interests that are tax deductible were also found to reduce tax and improve profitability. It was recommended that debt should be employed in such capacity that the costs do not outweigh the benefits. The research design used in this study is not proper for this type of study; it is supposed to make use of panel data research design. The study concluded that firms that finance with more equity perform better than that of more debt levered firms. It was recommended that debt should be employed in such capacity that the costs do not outweigh the benefits.

Atumwa (2013), examined the relationship between agency cost and leverage for companies listed at the Nairobi securities exchange. The population of the study was 60-listed firm on the Nairobi Security Exchange from 2008 to 2011, a sample of 34 companies were selected by filtering. Data was collected from financial reports by analyzed by use of multiple regressions on SPSS his finding is that; hat agency cost significantly influence leverage level variability of firms' listed in the NSE. Significant positive predictor of performance measured in terms of ROE and Tobin's Q. This study examined financial statement for four years only which is not enough to make conclusions as to how leverage affects financial position of organizations. The study concluded that there is a significant relationship between agency cost and leverage for listed firms in Nairobi. The study recommends that agency cost should be given great consideration in financing the businesses of listed firms.

Methodology

The paper adopted the ex-post facto research design. This is adjudged to be the appropriate design on the basis that the researcher does not have control over the variables mainly because the event have already occurred and cannot be changed by the researcher. The research design adopted will benefit from extant approaches of previous empirical studies in terms of methods of research used. The population of interest consists of industrial goods industrial manufacturing firms listed on the Nigeria Exchange (NGX). From preliminary survey of documents from the official list of the NGX, there are seventeen (17) companies in the sector of interest. Further, considering the limited number of firms in the sector of interest, the research intends to use all companies in the sector for which the necessary information and data are available and easily accessible for the entire study period which covers from 2010 to 2019. The data of the selected seventeen industrial goods companies for the period of ten years from (2010-2019) used in the study were collected from secondary sources as contained in the published annual reports of the firms.

The secondary data which were collected for the dependent and independent variables were analyzed using descriptive statistics, correlation analysis, and panel regression. The descriptive statistics will detect whether there are errors in the data set by determining mean, maximum and minimum values for each of the variable measures. Pearson correlation analysis will test the association among the variables, while panel regression is to examine the relationship between the dependent and independent variables. Panel regression tests for fixed effect model and random effect model. Thereafter, Housman specification test to determine whether the fixed effect or random effect is most appropriate for the study.

In order to examine the effect of debt financing on financial performance of listed consumer goods companies in Nigeria, the study adopted with some modification the model used by Iorpev and Kwannum (2012) as presented below:

$$ROA_{it} = \alpha_0 + \beta_1 STD_{it} + \beta_2 LTD_{it} + \beta_3 TDT_{it} + \beta_4 FSZE_{it} + \beta_5 FAGE_{it} + \epsilon_{it} \ldots . (1)$$

$$NPM_{it} = \alpha_0 + \beta_1 STD_{it} + \beta_2 LTD_{it} + \beta_3 TDT_{it} + \beta_4 FSZE_{it} + \beta_5 FAGE_{it} + \epsilon_{it} \ldots \ldots . (2)$$

To standardize all variables, the independent variables which are in absolute values are transformed to their natural log from:

$$ROA_{it} = \alpha_0 + \beta_1 logSTD_{it} + \beta_2 logLTD_{it} + \beta_3 logTDT_{it} + \beta_4 logFSZE_{it} + \beta_5 logFAGE_{it} + \epsilon_{it} \ldots (3)$$

$$NPM_{it} = \alpha_0 + \beta_1 logSTD_{it} + \beta_2 logLTD_{it} + \beta_3 logTDT_{it} + \beta_4 logFSZE_{it} + \beta_5 logFAGE_{it} + \epsilon_{it} \ldots (4)$$

From the above, we infer in narative form that financial performance measured in terms of Return on Asset (ROA); and Net Profit Margin (NPM) are dependent on the firms' financing decisions measured using Short term debt (STD); Long term debt (LTD); and Total Debt (TDT) while firm size (FSZE) and firm age (FAGE) are included as moderating variables.

The a priori expectation is that $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 > 0$

Data and Results

Data for the research relates to 17 quoted industrial goods companies for the period from 2010 to 2019. The list of companies in sample and collated data set are shown in appendix 1 and appendix 2. Below is shown outcomes of data analysis and related interpretation.

Table 4.1: Descriptive Statistics

Variables	Mean	Median	Max	Min	Std. Dev.	Obs
ROA	0.04092	0.04516	0.53959	-1.79916	0.20747	170
NPM	0.01531	0.05718	0.77868	-3.44943	0.37746	170
STD	6.44649	5.98160	10.12868	3.83429	1.34388	170
LTD	5.94725	5.43234	9.48721	3.98037	1.37416	170
TDT	6.62987	6.16535	10.20364	4.69436	1.30783	170
FSZE	6.81591	6.40121	11.55237	5.22526	1.25243	170
FAGE	1.60135	1.61802	1.89763	0.95424	0.18759	170

The dependents variables - ROA and NPM had mean values of 0.0409; and 0.0153. ROA had a maximum and minimum occurring values of 0.5396; and -1.799 while NPM had maximum and minimum values of 0.77868; and -3.44943. Both dependent variables also had standard deviation values of 0.2075; and 0.3775. From the above we take cognizance of the tight cluster of values around the mean which for ROA is also quite close to the median score of 0.04516. This on the surface implies low occurrence of outliers which are capable of skewing outcomes. Further, the independent variables - STD, LTD, TDT had mean values of 6.4465; 5.9473; and 6.6299. The median scores were also tightly clustered around the average scores with 5.9816; 5.4324; and 6.1654. The maximum values for all 3 independent variables were 10.1287; 9.4872; and 10.2036 and minimum values of 3.8343; 3.9804; and 4.6944. Finally, FSZE and FAGE (moderating

variables) had mean values of 6.8159; and 1.6014 and standard deviation from the mean 1.2524; and 0.1876. In all, we surmise that the data has very little occurrence of outliers.

Table 4.2: Augmented Dickey-Fuller (ADF) Unit Root Test Results

Variable	ADF Stat	T-Stat (5%)	Prob.	Order of integration
ROA	-8.2834	-2.8785	0.0000	I(0)
NPM	-6.5397	-2.8786	0.0000	I(0)
STD	-4.4227	-2.8785	0.0004	I(0)
LTD	-3.9471	-2.8785	0.0022	I(0)
TDT	-4.2500	-2.8785	0.0007	I(0)
FSZE	-4.0351	-2.8785	0.0016	I(0)
FAGE	-2.9798	-2.8785	0.0388	I(0)

From the augmented Dickey-Fuller test results in table 4.2, it is observed that all variables were stationary at level. This implies that there is no problem of unit root observed in the data. Consequently, the ordinary least square and its variant - the panel least square are appropriate decision tools for further econometric analyses and test of hypothesis.

Table 4.3: Summary Pearson Correlation Matrix

	ROA	NPM	STD	LTD	TDT	FSZE	FAGE
ROA	1.0000						
NPM	0.8250	1.0000					
STD	0.1446	0.0398	1.0000				
LTD	0.0932	0.0277	0.9077	1.0000			
TDT	0.1352	0.0278	0.9899	0.9500	1.0000		
FSZE	0.2798	0.3196	0.7781	0.7753	0.7970	1.0000	
FAGE	-0.1365	-0.2678	0.0858	0.1380	0.0845	-0.1192	1.0000

The Pearson correlation results in table 4.3 indicates a positive correlation between return on assets (ROA) and short term debt financing (STD) with a correlation coefficient of 0.1446 implying that the strength of the relationship between the variables is 14.46%. Long term debt financing (LTD) had a coefficient of correlation value of 0.0932 with ROA implying that the strength of the relationship between the variables was 9.32% while the total debt financing (TDT) had a positive correlation value of 0.1352 with ROA. In all, return on assets had a positive correlation with all the measures of the independent variable - implying that debt financing not minding the term structures is predicted to lead to better performance in terms of return on assets. In the same vein, the second measures of financial performance - net profit margin (NPM) was potively correlated with short term debt financing (STD); long term debt financing (LTD); and total debt financing (TDT) with correlation coefficient values of 0.0398; 0.0277; and 0.0278 respectively. Thus, debt financing is predicted to improve net profit margin and return on assets.

Table 4.4: Summary Result: Panel Estimated Generalized Least Squares (Cross-section random effects)				
Dependent Variable: ROA				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.14091	0.340879	-0.41337	0.6799
STD	-0.01954	0.141222	-0.13839	0.8901
LTD	-0.05253	0.063415	-0.82831	0.4087
TDT	0.002881	0.19972	0.014425	0.9885
FSZE	0.110008	0.037234	2.954462	0.0036
FAGE	-0.09285	0.171508	-0.54139	0.589
R-squared: 0.07114; F-Stat: 2.554; Prob. (F-Stat): 0.0296: D-W: 1.867				

Table 4.4 shows summary of regression result obtained using the Random Effects Model and system specified Panel Estimated Generalized Least Squares (EGLS) method. The result shows that there is a negative relationship between short term debt (STD) financing and the return on assets of listed industrial goods manufacturing companies in Nigeria. The coefficient of regression for short term debt financing of -0.01954 implies that a 1% change in short term debt financing is predicted to lead to a 0.019% change in return on assets in the opposite direction. Thus, increasing short term debt financing is predicted to decrease in return on assets. However, the relationship between the variables is not statistically significant considering that the probability of t-statistic was 0.8901 which is much higher than the 0.05 critical limit. In the same vein, long term debt (LTD) financing also recorded a negative non-significant relationship with return on assets with a coefficient of regression value of -0.05253 implying that 1% increase in long term debt financing is predicted to a 0.05% decrease in return on assets. The probability of t-statistic had a value of 0.4087 implying a non-statistically significant relationship. On the other hand, total debt (TDT) financing had a positive relationship with return on assets implying that taken as a whole, increase in both short and long term debt financing led in increase in return on assets. However, the effect size (b = 0.0029) is quite minimal thus resulting in a non-significant relationship. This is evident from the probability of t-statistic value of 0.9885. We also note that the firm size which is was included as a control variable had a statistically significant positive relationship with return on assets implying that increasing firm size is predicted to lead to increase in return on assets. This is obvious from the probability of t-stat value of 0.0036 and coefficient of regression value 0.11. However, same does not apply to firm age (FAGE) which is shown to have a negative non-significant relationship with return on assets. Finally, the R-Squared value of 0.07114 implies that all independent variables in the model can only account for about 7.11% of the variations in return on assets of quoted industrial goods companies in Nigeria.

Table 4.10 Summary Result: Panel Estimated Generalized Least Squares				
Dependent Variable: NPM				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.249782	0.467072	0.534784	0.5935
STD	0.453523	0.232601	1.949787	0.0529
LTD	0.104065	0.104628	0.994616	0.3214
TDT	-0.77388	0.325928	-2.37439	0.0187

FSZE	0.267795	0.052478	5.102968	0.0000
FAGE	-0.29446	0.226718	-1.29881	0.1958
R-squared: 0.1752; F-Stat: 6.966; Prob. (F-Stat): 0.0000: D-W: 1.747				

The regression results in table 4.10 shows that there is a positive relationship between short term debt (STD) financing and the net profit margin of listed industrial goods manufacturing companies in Nigeria. The coefficient of regression for short term debt financing of 0.4535 implies that a 1% increase in short term debt financing is predicted to lead to a 0.45% increase in net profit margin. However, the relationship between the variables is not statistically significant considering that the probability of t-statistic was 0.0529 which is slightly higher than the 0.05 critical limits. In the same vein, long term debt (LTD) financing also recorded a positive non-significant relationship with net profit margin of the sample firms with a coefficient of regression value of 0.1041 implying that 1% increase in long term debt financing is predicted to a 0.10% increase in net profit margin. The probability of t-statistic had a value of 0.3214 implying a non-statistically significant relationship. Total debt (TDT) financing had a negative relationship with net profit margin implying that, increase in both short and long term debt financing is predicted to decrease net profit margin. However, the considerable effect size (b = -0.7739) result in a statistically significant relationship. This is evident from the probability of t-statistic value of 0.0187. Firm size - included as a control variable - had a statistically significant (Prob. = 0.000) positive relationship with net profit margin implying that increasing firm size is predicted to lead to increase in net profit margin. However, same does not apply to firm age (FAGE) which is shown to have a negative non-significant relationship with net profit margin. Finally, the R-Squared value of 0.1752 implies that all independent variables in the model can account for about 17.52% of the variations in net profit margin of quoted industrial goods companies in Nigeria.

Discussion of Results

From the results of the data analysis, it was revealed that there is positive relationship between short-term debt financing and net profit margin. This result implies that increasing short-term debt financing is predicted to lead to improvement in net profit margin. However, the result was not significant - thus, benefits accruing from the use of short-term debt financing is quite minimal and cannot (at its present level) be relied to achieve optimal growth. On the other hand, short-term debt financing had a negative relationship with return on assets with the implication that short-term debt financing is predicted to lead to deterioration in return on assets. The relationship between short-term debt financing and return assets is not significant. Thus, while short-term debt has report difference in terms of direction of effect or relationship with return on assets and net profit margin, it agrees on non-significant effect sizes. The findings are in line with that of Karuma, Ndambiri, and Oluochi (2018) who found that short-term debt financing had a non-statistically significant relationship with return on assets; return on equity and net profit margin. The researchers suggested consider that use of other longer term financing sources. However, this should be done with proper understanding of matching of sources to term structure of financing. The findings is further supported by that of Ezeduru, Olajide and Ango (2018) - with non-significant relationship between debt-equity ratio and financial performance. In the same vein, Jeleel and Olayiwola (2017) concluded that firms utlizing more equity financing sources performed better than those that are highly leveraged. However, Ruth (2017) focusing on the food and beverage industry found a positive and significant relationship between

return on equity and short-term debt financing.

Similarly, there was a positive relationship between long-term debt financing and net profit margin of listed industrial goods companies. This indicates that use of long-term debt financing helps to improve the net profit margin - however, the size effect is much lower than desirable in which case relationship between the variables is not significant. In contrast, long-term debt financing had a negative relationship with return on assets with the implication that using long-term debt financing was predicted to lead to decrease in return on assets of our sample firms. The relationship was however not statistically significant. It indicates a contrasting relationship between long-term debt financing and its relationship with net profit margin and return on assets. However in both cases, the size effect was minimal. Onyenwe and Glory (2017) reported that long-term debt financing improved managerial efficiency as they are forced to be more methodical in makiing decisions. However as noted by Atumwa (2013), the associated risks of using debt financing may hamper firm activities as managers may become overly cautious.

The findings of the researh also revealed that total debt financing had a negative relationship with net profit margin. This implies that the increasing use of debt aggregated as a unit is predicted to lead to a decrease in net profit margin. The finding was also statistically significant with the implication total debt financing was an important determinant of the financial performance of listed industrial goods companies operating in Nigeria. However, the relationship between total debt financing and return on assets was positive with the implication that an aggregation of debt used by the firms was capable of improving their return on assets. The low effect size however means that the relationship is not statistically significant. In a similar research conducted by Imeokparia, Adesanmi and Fadipe (2021) albeit in the banking industry revealed that total debt ratio had a statistically significant negative relationship with financial performance. The research by Edore and Ujuju (2020) however concluded that the use of debt improve financial performance and firm value. And Afolabi, Olabisi, Kajola, and Asaolu (2019) who examined the relationship between leverage and financial performance of firms found that debt-equity-ratio had a positive relationship with return on capital employed. Also Onuora (2019) found a significant negative relationship between debt equity ratio and return on equity. The mixed findings point to the fact that use of debt financing and its outcomes vary across time and industry. Thus, what may appear to be a perfectly good debt financing decision in one economic condition or scenario may unravel as new economic realities unfold for a specific industry or firm. This appear to inform the recommendations by the cited authors who mostly harped on caution and proper due diligence in use of debt financing.

Conclusions

Short-term debt financing is not an important determinant of the net profit margin. This is notwithstanding the fact that it does have a positive effect in on net profit margin however, the effect size is quite low. Consequently, short-term debt financing (in its present form and levels) cannot be relied to enhance net profit margin. Furthermore, the use of short-term debt financing leads to deterioration in return on assets. However, the extent of its effect is quite minimal. Thus, it is effect cannot be relied on to contribute to return on assets in any meaningful way.

It is also concluded that long-term debt financing does not have a meaningful effect on the net profit margin. It is conceded that long-term debt financing does have the potential to improve net profit margin, however the rate of its effect is not adequate to achieve the desired results. On the other hand, the use of long-term debt leads to decrease in return on assets. Its effect is however

quite minimal and as such is not an important determinant of financial performance. Total debt financing is an important factor in the determination of the financial performance as it exhibits a significant relationship with net profit margin. However, its effect is shown to be deleterious to financial performance of industrial goods companies in Nigeria.

Finally, the effect of total debt financing on return on assets is quite minimal. Thus, total debt financing does not contribute meaningfully to the return on assets of industrial goods companies in Nigeria.

Recommendations

It is suggested that managers acquire better knowledge relating to optimal use of debt financing. For example, understanding the nature and structure of a firm's capital base will help managers to understand whether the use of debt financing is capable of enhancing financial performance. It is also important to understand the contents of debt covenants as this is capable if restricting the ablity of managers to make decisions. Finally, it is very critical to make financing decisions with a proper understanding of economic conditions and its constant fluidity.

It is also recommended that companies desirous of extensively using debt financing must first shore-up their capital base. This is because capital base is one of the important considerations of funds providers in their determination of whom to advance facilities to. Ensuring that the organisation have viable investment outlet before applying for loan facilities. The viability of investment options should be given consideration with respect to future cash flow from the investment which will be useful for the liquidation of the facility. It is also important to ensure that the investment has a positive net present value at its termination date.

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