
LONG TERM DEBT RATIO AND EARNINGS PER SHARE OF LISTED MANUFACTURING FIRMS IN NIGERIA

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Abstract

This study determined the effect of Long Term Debt Ratio on Earnings Per Share of listed Manufacturing Firms in Nigeria. Ex Post Facto research design was adopted. Data were generated from annual reports and accounts of the sampled companies. The analysis was carried out via regression analysis; the result shows that Long Term Debt Ratio has no significant effect on Earnings Per Share of quoted manufacturing firms in Nigeria. This implies that the percentage of a company's assets may not liquidate to repay its long-term debt. Based on the finding, the study recommended that government and/or lending institutions should design long term financing options suitable for firms such as credit and equity guarantees as well as industry-based credit facilities that will make long term credit not only available but also affordable.

Keywords: Long Term Debt Ratio, Earnings Per Share and Manufacturing firms in Nigeria

Introduction

As debt increases, shareholders require higher returns since they face higher financial risk. This higher financial risk results from spreading the firm's business risk over a proportionately smaller equity base. Wealth creation refers to changes in the wealth of shareholders on a periodic (annual) basis. Applicable to stock exchange listed firms, changes in shareholder wealth are inferred mostly from changes in stock prices, dividends paid, and equity rose during the period. The wealth maximization requires that the shareholders funds rose by issuing shares or by obtaining earnings which are utilized such that organization earns a return on them equal to the returns expected by shareholders. If the organization fails to earn expected rate, the market value of the share will fall and the shareholders' wealth will be reduced. Similarly, funds raised by issuing debt and preference capital will reduced the market value per share. Hence, Amahalu and Obi (2020) described industry and in particular the manufacturing sub-sector, as the heart of the economy. Manufacturing industry refers to those industries which involve in the manufacturing and processing of items and indulge in either creation of new commodities or in value addition. The manufacturing industry accounts for a significant share of the industrial sector in developed countries. The final products can either serves as a finished good for sale to customers or as intermediate goods used in the production process. Manufacturing industries not only help in modernising agriculture, they also reduce the heavy dependence of people on agricultural income by providing them jobs in secondary and tertiary sectors. Industrial development is a precondition for eradication of unemployment and poverty.

Surveys of empirical studies revealed that consensus have not been reached on the relationship between debts financing on shareholders wealth creation. Many studies reported a significant negative relationship between debt financing and performance. For instance, Orji, Nwadiolor and Agubata (2021) examined the effect of Debt Financing on Performance of Firms in Nigeria using OLS Regression Model. The findings of the study showed that Debt Financing has significant and positive effect on Firms Performance. Kućera, Vochozka and Rowland (2021) determined the optimal credit absorption capacity of enterprises in Austria. The linear regression analysis found a negative relationship between leverage and performance of enterprises. Eze and Akwarandu (2020) evaluated the impact of tax shield on capital structure of quoted non-financial firms in Nigeria. The study analyzed the data set using panel least square regression analysis. The result showed that debt tax shield and firm leverage does not significantly impact on capital structure. It can be deduced from the above reviews of empirical literature that results from investigations into the relationship between debt financing and performance are inconclusive and requires more empirical studies, thereby creating a gap in knowledge. This study therefore, determines the effect of Long Term Debt Ratio on Earnings Per Share of listed Manufacturing Firms in Nigeria.

Conceptual Review

Long term debt ratio is the financial leverage ratios measuring the proportion of long-term debt used to finance the assets of a business. This ratio represents the position of the financial leverage the company's take. With this ratio, analysts can estimate the capability of the corporation to meet its long-term outstanding loans (Smith, 2020). Long term debt ratio is a coverage or solvency ratio used to calculate the amount of a company's leverage. The ratio result shows the percentage of a company's assets it would have to liquidate to repay its long-term debt. It is the ratio that represents the financial position of the company and the company's ability to meet all its financial requirements. It shows the percentage of a company's assets that are

financed with loans and other financial obligations that last over a year. As this ratio is calculated yearly, decrease in the ratio would denote that the company is fairing well, and is less dependent on debts for their business needs (Harvey, 2020).

Long-term debt is debt that is due in more than one year. Some of the examples of long-term debt include bonds and government treasuries. On the statement of financial position, these kinds of debts are usually written collectively as “long-term debt” under non-current liabilities (Campbell, 2020). A company can build assets by raising debt or equity capital. The ratio of long-term debt to total assets provides a sense of what percentage of the total assets is financed via long-term debt. A higher percentage ratio means that the company is more leveraged and owns less of the assets on balance sheet. In other words, it would need to sell more assets to eliminate its debt in the event of a bankruptcy. The company would also have to generate strong revenue and cash flow for a long period in the future to be able to repay the debt. This ratio provides a sense of financial stability and overall riskiness of a company. Investors are wary of a high ratio, as it signifies management has less free cash flow and less ability to finance new operations (Steven, 2020). Management typically uses this financial metric to determine the amount of debt the company can sustain and manage the overall capital structure of the firm (Nicholas, 2020).

$$\text{Long Term Debt Ratio} = \frac{\text{Long Term Debt}}{\text{Total Assets}}$$

Long term debt is a resource that is owed to lenders for a period of more than one year from the date of the current statement of financial position (Sanyaolu & Job-Olatunji, 2017). Long-term debt converts to short-term debt when the period left until the debt must be repaid becomes less than one year with the passage of time. Long-term debt is used to finance business investments that have longer payback periods. Long term debt financing is advantageous as it is usually less prone to short term shocks as it is secured by formally established contractual terms. Hence, they are relatively more stable than short-term debt (Pathrawasam, 2013; Bhasin, 2017). Long term debt financing is directly linked to the growth of the company's operating capacity, the purchase of capital assets such as machinery (Abdul, 2017). Thus fewer resources have to be channelled to monitor and maintain long-term debt financing accounts compared to short term debt financing such as supplier credit which, changes overtime and need to be monitored on a regular basis. Long term debt financing options such as leases offer a certain degree of flexibility, compared to having to purchase the asset (Nelson & Skinner, 2013).

Long term debt is a component in the capital structure of a firm, yet it has to be applied with a lot of caution. Prior studies on long term debt have offered varied results on the effects of long term debt on financial performance. Awan, Siddique and Sarwar (2014); Liljebloom and Maury (2016); Tabd-Elnaby (2019) found a positive relationship between long term debt and financial performance. Fayed and Dubey (2016); Zhang and Liu (2017) found a negative relationship between long term debt and financial performance. Panigrahi and Zainuddin (2015) found a non-significant relationship between long term debt and financial performance. Nwana and Ivie (2017) highlighted that when firms have too much long-term debt, managers may forgo profitable investments.

Empirical review

Goyal (2013) studied the impact of capital structure on profitability of public sector banks in India listed on national stock exchange during 2008 to 2012. Regression analysis was used for establishing relationship between Return on Equity, Return on Assets & EPS with capital structure. The findings revealed positive relationship of short term debt with profitability as measured by ROE, ROA and EPS. Arowoshegbe and Emeni (2014) examined the relationship between shareholders' wealth and debt-equity mix of quoted companies in Nigeria. The study was based on a panel data set from 1997 to 2011 comprising sixty non-financial companies. The study specified two panel regression models. Two measures of shareholders' wealth: Return on Equity (ROE) and Earnings per Share (EPS) were taken as the dependent variables respectively. The principal explanatory variable for each of the models was Debt Ratio (DR). The results of the study conform to the a-priori expectation that there is a significant negative relationship between shareholders' wealth and debt-equity mix of quoted companies in Nigeria. Pandey and Prabhavathi (2016) examined the impact of leverage on shareholders' wealth of the automobile industry in India, using 12 firms in the automobile industry which listed their share in CNX Auto of NSE in India for the period 2003 to 2013. The study revealed that the simple and multiple regression inferred that Return on Capital Employed (ROCE), Return on Equity (ROE), Return on Debt (ROD), Net worth (NW), Reserve Fund (RF), Borrowings (B), Investment (I) as well as Gross Fixed Assets have significantly impacted FL which means that the debt cost is strongly associated with the returns of the firms. Nurideen (2017) investigated the effect of short term financial leverage on shareholders' wealth maximisation of Ghanaian banks. The study used secondary data from 2004-2014 and estimated the relationship using panel ordinary least square estimation technique after the relevant econometric considerations were tested. The study revealed that both minimum mean proxy and maximum mean proxy of short term financial leverage positively affect shareholders' wealth, however, the minimum mean proxy was insignificant. It was concluded that the higher the level of short term financial leverage, the more the wealth of shareholders of Ghanaian banks are maximised. Lahcen (2019) used a panel dataset covering 550 non-listed manufacturing firms in Morocco over the period 2008–2017 and investigated both long-term and short-term measures of leverage with the objective of understanding the factors that shape “debt-equity choice” as well as “debt maturity structure”. The analysis revealed the existence of a negative relationship between asset tangibility and both aggregate leverage and short-term debt ratio. However, no clear cut relationship between asset tangibility and long-term debt is uncovered. Small firms tend to increase their debt instead of opening their capital to outside investors and larger firms seem to rely much more on their retained earnings for their long-term financial needs. For short-term debt, size does not appear to matter. The impact of growth is positive on short-term leverage and irrelevant for long-term leverage. Finally, profitability exerted a positive effect on long-term leverage and a negative one on short-term leverage. Eze and Akwarandu (2020) evaluated the impact of tax shield on capital structure of quoted non-financial firms in Nigeria. Five hypotheses were formulated following the dependent variables of Long Term Debt Ratio and Short Term Debt Ratio. The independent variables employed for this study are: Operating Income, Non-Debt Tax Shield, Debt Tax Shield, Trade Credit Ratio, Firm Size and Firm Leverage. The study analyzed the data set using panel least square regression analysis. The study finding support the trade-off theory developed by Modigliani and Millers who explained that, “the relevance of debt with the existence of taxes is beneficial for the formation of a firm's capital structure and serves to shield earnings from taxes. The result showed that both variables of debt tax shield and firm leverage significantly impact on

capital structure of non-financial firms in Nigeria during the period under investigation. Yulianto, Witiastuti and Widiyanto (2021) examined the effect of debt and equity on firm performance in technology information digitalization (TID) as a form of open innovation in reducing information asymmetry. Furthermore, companies with asymmetric information preferred debt over equity. The study collected 3,343 pooled data observation units of companies listed in the Indonesian capital market period 2008 to 2019. The study used OLS regression analysis to determine the difference between the absence and presence lifecycle stage in determining capital structure relations and exploiting growth opportunities. The study found information disclosure obligation of the capital market regulator has not been fully disclosed through TID. As a result, companies choose to pass in growth opportunities with debt or equity in the absence life cycle stage. The study found that debt has a positive effect on the utilization of growth opportunities. The company preferred the issuance of debt with lower information sensitivity than equity.

Methodology

The research design employed in this study is the *ex-post facto* research design. An *Ex-post Facto* research determines the cause-effect relationship among variables. The population of this study comprised all the fifty-nine (59) listed manufacturing companies in Nigeria as at 31st December, 2020 (Nigerian Exchange Group, 2021).

Purposive sampling technique was adopted in the determination of the sample size based of the availability and up-to-date annual financial statements; listed manufacturing companies that have consistently submitted their annual reports to the Nigerian Exchange Group (NGX) from 2010 to 2020. In view of this, twenty one (21) listed manufacturing companies served as the sample size of this study.

Essentially, this study utilised secondary data that were extracted from the annual reports and statements of account of the sample listed manufacturing companies.

Data Analysis Technique

The analysis of data for this study was done based on the secondary financial data obtained from publications of the Nigerian Exchange (NGX) Group and the annual reports and accounts of the listed manufacturing firms in Nigeria covering 2010-2020. The sample entails a balanced panel data of 210 firm-year observations, related to 21 different firms, during the eleven (11) years (2010-2020) period. Descriptive statistics was used to summarise the mean, median, standard deviation, skweness, kurtosis, maximum and minimum of the variables. Inferential statistical analysis was carried out with the aid of E-Views 9.0 statistical software. These include the following:

Panel Least Square (PLS) regression analysis: was used to predict the value of a variable based on the value of the other variables;

Model Specification

This study adapted the model of Agung and Andi (2019):

$$ROE = \beta_0 + \beta_1 DER + \beta_2 TLR + \beta_3 CDR + \xi$$

Where:

ROE : Return on Equity

DER = Debt-to-Equity Ratio

TLR: Total Liability Ratio
 CDR: Cash Flow to Debt Ratio
 ξ : Error Term

The following models were employed to estimate the relationship between the discrete components of debt Financing and earnings per share. Hence, the composite multiple regression equation is:

$$EPS_{it} = \beta_0 + \beta_1 LTDR_{it} + \beta_2 LQD_{it} + \mu_{it}$$

Where:

- β_0 = Constant term (intercept)
- β_1, β_2 , = Regression co-efficients
- β_1 = slope (coefficient or parameter estimate) of LTDR.
- β_2 = slope (coefficient or parameter estimate) of LQD
- μ_{it} = idiosyncratic error (unobservable factors) that vary over time and affect shareholders' wealth creation
- i = individual firms (1,2,3,... 21)
- t = time periods (1,2,3,... 11)
- EPS_{it} = Earnings per Share of firm i in period t
- $LTDR_{it}$ = Long Term Debt Ratio of firm i in period t
- LQD_{it} = Liquidity of firm i in period t

Decision Rule

Reject H_0 if the P-value of the test is less than α -value (level of significance) at 5%, otherwise accept H_1 .

Data Analysis

Table 1: Descriptive analysis

	EPS	LTDR	LQD
Mean	1.058935	0.998182	0.545455
Median	1.196200	1.010000	0.570000
Maximum	1.439300	1.010000	0.740000
Minimum	0.077670	0.970000	0.320000
Std. Dev.	0.490712	0.014709	0.150424
Skewness	-1.456433	-0.663456	-0.300881
Kurtosis	3.426344	2.045583	1.810602
Jarque-Bera	3.972174	1.224486	0.814360
Probability	0.137231	0.542134	0.665524
Sum	11.64828	10.98000	6.000000
Sum Sq. Dev.	2.407978	0.002164	0.226273
Observations	11	11	11

Interpretation

Table 1 presents the descriptive statistics for the dependent variable earnings per share (EPS) and the independent variable, long term debt ratio (LTDR) and control variable, liquidity (LQD). The mean serves as a tool for setting benchmark. The median re-ranks and takes the central tendency. While the maximum and minimum values help in detecting problem in a data. The standard deviation shows the deviation/dispersion/variation from the mean. It is a measure of risk. The standard deviation is a measure that summarizes the amount by which every value within a

dataset varies from the mean. It is the most robust and widely used measure of dispersion. The standard deviation in the earnings per share for the period 2010-2020 is 0.490712, 0.014709, and 0.150424 for EPS, LTDR and LQD, respectively. Skewness and Kurtosis are contained in Jarque-Bera. Positively skewed is an indication of a rise in profit while negatively skewed is an indication of loss or backwardness. Jarque-bera is used to test for normality; to know whether the data are normally distributed.

Test of hypothesis

H₀: Long Term Debt Ratio has no significant effect on Earnings Per Share of quoted manufacturing firms in Nigeria.

H₁: Long Term Debt Ratio has significant effect on Earnings Per Share of quoted manufacturing firms in Nigeria.

Table 2: Ordinary Least Square analysis between EPS and LTDR

Dependent Variable: EPS

Method: Least Squares

Date: 09/01/23 Time: 09:11

Sample: 2010 2020

Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-16.10940	9.991869	-1.612251	0.1456
LTDR	16.83601	10.22943	1.645840	0.1384
LQD	0.665371	1.000294	0.665176	0.5246
R-squared	0.383835	Mean dependent var		1.058935
Adjusted R-squared	0.229794	S.D. dependent var		0.490712
S.E. of regression	0.430655	Akaike info criterion		1.379983
Sum squared resid	1.483712	Schwarz criterion		1.488500
Log likelihood	-4.589908	Hannan-Quinn criter.		1.311579
F-statistic	2.491766	Durbin-Watson stat		1.030323
Prob(F-statistic)	0.144141			

Interpretation of Regression Result

In table 2, a panel least square regression analysis was conducted to test the relationship between earnings per share and long term debt ratio. Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the table 2, the value of adjusted R squared was 0.23, an indication that there was variation of 23% on EPS due to changes in LTDR, and LQD. This implies that only 23% changes in EPS of the company could be accounted for by LTDR, while 77% was explained by unknown variables that were not included in the model. The probability of the slope coefficients indicate that; P_1 (0.138 > 0.05), P_2 (0.525 > 0.05) for LTDR and LQD respectively. The co-efficient value of; $\beta_1 = 16.836$, $\beta_2 = 0.665$ implies that LTDR and LQD is positively related to EPS, though not statistically significant at 5%.

The Durbin-Watson Statistic of 1.030323 suggests that the model does not contain serial correlation. The F-statistic of the EPS regression is equal to 3.438 and the associated F-statistic probability is equal to 0.144, so the null hypothesis was accepted and the alternative hypothesis was rejected.

Decision

Since the Prob (F-statistic) of 0.144 is higher than the critical value of 5% (0.05), then, it would be upheld that Long Term Debt Ratio has no significant effect on Earnings Per Share of quoted manufacturing firms in Nigeria.

Concussion and Recommendations

This study determined the effect of Long Term Debt Ratio on Earnings Per Share of listed Manufacturing Firms in Nigeria. *Ex Post Facto* research design was adopted. Data were generated from annual reports and accounts of the sampled companies. The analysis was carried out via regression analysis; the result shows that Long Term Debt Ratio has no significant effect on Earnings Per Share of quoted manufacturing firms in Nigeria. This implies that the percentage of a company's assets may not liquidate to repay its long-term debt.

Based on the finding, the study recommended that government and/or lending institutions should design long term financing options suitable for firms such as credit and equity guarantees as well as industry-based credit facilities that will make long term credit not only available but also affordable.

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