The Effect of Debt on Earnings Per Share Using Manufacturing Companies in Nigeria from 2011 to 2021

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ABSTRACT

This research work analyzed the effect of debt on earnings per share using manufacturing companies in Nigeria from 2011 to 2021. The data for the study were obtained from the financial statements of these listed firms using purposive and stratified sampling procedures. Before conducting the analysis of the effect of debt on earnings per share using SPSS 28, the data used were examined to comply with basic assumptions of linearity, homogeneity and outliers. The result obtained indicated that short term debt has no significant effect on earnings per share (p = 0.651, DW = 1.008, R=0.108). This outcome of this study is in disagreement with Sriyono & Fatmasari [1] which opined that short term debt enhances earning per share. Also the study found out that long term debt exert significant positive effect on earnings per share (p=0.025, DW=1.234, R=0.498). The findings is in line with Efuntade, Efuntade, & Akintola, [2], Siyanbola, Olaoye, & Olurin [3] and Sriyono & Fatmasari [1] as they all suggest that long term debt increase earnings per share. Further findings from this research indicated that there is a significant effect of total debt on earnings per share (p=0.0194, DW= 1.064, R=0.303). This result is in tandem with Badruzaman [4], Efuntade, Efuntade, & Akintola, [2], Siyanbola, Olaoye, & Olurin [3], Sriyono & Fatmasari [1] among others. This study concluded that while short term debt exert insignificant effect on earnings per share, long term debt and a mix of short term debt and long term debt do. This study further supports the Perking Order Theory which helps in explaining that management elects to finance their investment in the cheapest means available using options that better their lots.

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1. INTRODUCTION

The general believe and understanding in concepts and principles is that among the financial goals of a firm or company should be the creation of wealth or wealth maximization for the shareholders. Wealth maximization can be reflected in the earnings per share of the company's share in the stock market. Generally, the capital structure of a firm is made up of two elements namely the equity capital otherwise known as the share capital and the debt capital otherwise called borrowings. Equity capital or equity shares represent the rights of the shareholders of the firm who invested their monies in the firms' equity or shares with the expectation of return from their investment which can come in form of either dividend or capital gain.

Whereas the payment of dividend is at the discretion of the company's Board of Directors, shareholders can derive capital gains whenever they dispose-off their shares. Also shareholders can reap capital gain whenever the market value of the company's shares increases. One of the indicators showing a company has attractive performance towards boosting investors' confidence to invest in such company is a high level of Earnings Per Share (EPS) [5]. Earnings per share is a figure that can provide a clear and adequate information on performance of a company. It is considered as one of the most popular and most widely used measure of performance and it is adopted in taking wide key strategic financial decisions such as merger, acquisition, take over among other key decisions taken by the top management.

Maximization of the earnings per share is expected to yield highest possible share price for the company's shares [6,7]. Hence, shareholders are expected to benefit huge capital gain as they dispose-off their shares. Since profit maximization does not necessarily translate to maximization of the earnings per share [8], it is not impossible for a firm to realize high profit after taxes yet not declaring dividends yet still sell additional equity shares. This will lead to dilution of shares and there is possibility of decrease in earnings per share.

A firm or a company may elect to be financed by debt, equity or both. The mix of debt and equity a company holds is generally referred as its capital structure. According to Dimitris and Psillaki [9], capital structure can be described as the percentage of capital or amount of money by type and the make up of its different securities(Abor, 2015). It is key in the determination of the risk level of organizations (Adesola, 2009) and has a strong relation with earnings per share (Efuntade, Efuntade, & Akintola, 2019). Since each of these sources of capital has its own relative advantages and disadvantages, corporate managers tend to find the most suitable capital mix that will produce highest reward for the shareholders. So capital structure decisions are critical for the financial position of an organization, hence investors are interested in the outcome of such decision as it affects the return on their equity or the amount return on the amount of their investment.

Having highlighted the importance of earnings per share in its relation to capital structure and, it is necessary to identify the effect of debt in capital structure and earnings per shares of listed manufacturing companies in Nigeria.

1.1 Statement of Problem

It has been observed that interest on debt is usually paid out to debt providers in the profit and loss account before arriving at the profit to the shareholders having made provision for expansion. According to Modigliani and Miller's theory of capital structure, it is cheaper to finance businesses with debt. So as the debt in the capital structure continues to increase, there will be continuous agitation by the shareholders for increased return towards attaining equilibrium position where cost of equity equals the cost of debt.

This study therefore wishes to study the effect of debt structure on earnings per share using manufacturing companies in Nigeria as case study.

1.2 Aims and Objectives

The main objective of this study is to identify the effect debt in capital structure have on earnings per share. The specific objectives are derived from the main objective as follows:

- To identify the effect of short term debt to earnings per share;
- To determine the effect of long term debt to earnings per share; and
- To examine the effect both long term debt on earnings per share
2. METHODOLOGY

The study utilized ex-post facto research design. The population of the study is the fifty-two manufacturing enterprises registered on the Nigerian Stock Exchange (NSE) as of December 2021. Stratified and purposive selection procedures were used for samples collection from 2011 to 2021. SPSS was used for data analysis.

2.1 Research Hypothesis

The null hypotheses for the research are as stated below.

- $H_{01}$: There is no significant effect of short term debt on earnings per share.
- $H_{02}$: There is no significant effect of long term debt on earnings per share.
- $H_{03}$: There is no significant effect of short term debt and long term debt on earnings per share.

2.2 Research Question

The research question for this study are derived from the specific objective as follows:

- Is there any effect of short term debt to earnings per share?
- Does long term debt have effect on earnings per share?
- Do short term debt and long term debt have effect on earnings per share?

2.3 Scope of the Study

This study covers ten years period from 2011 to 2021 and is limited to manufacturing sector in the Nigeria economy. Manufacturing sector was used because they offer a wide range of products. Also there information are readily available in the Nigeria Stock Exchange.

The manufacturing firms for this study were classified as "Big, Medium, and Small" using a stratified sample approach. Purposive sampling was then used to choose firms from each stratum whose annual reports are available for the ten-year period 2011–2021.

2.4 Significance of the Study

This study is significant as it will provide a relation between debt structure and earnings per share of enterprises in Nigeria. Findings from this study will contribute to existing literatures on capital structure, debt, and earnings per share.

2.5 Justification of the Study

Several studies which include Singh & Baggah (2019), Idawati & Wahyudi [6] and Islam, Khan, Choudhury & Adnan [10] have studied the effect of earnings per share on firm’s value, earnings per share on return on assets and earnings per share on liquidity. None of these study has worked on the effect of debt on earnings per share which form the crux of this study. Therefore, this study was carried out to ascertain the effect of debt on earnings per share of companies in Nigeria.

3. LITERATURE REVIEW

3.1 Earnings Per Share

Earnings per share can be described as a ratio which represents the amount of returns or profit per share to the shareholders and it specifies the amount of income or earnings on ordinary shares in any given accounting period. This ratio can be obtained by dividing the net income after tax with the number of outstanding ordinary shares. EPS is found to be one of the most popular and most widely used measure of financial performance, critical to key strategic financial decision making on merger and acquisition negotiations for instance (Rachmawati R. S., 2021) providing an insight that an investment will render positive return to the investor (Badruzaman, 2020). Also EPS is an indicator that provides an assurance to the investor that investment impacts positively on the investors and a revelation of the successes of the company's management.

Islam, Khan, Choudhury and Adnan [10] identified five types of earning per share. These are:

- Reported EPS (or GAAP EPS) which is defined as the EPS derived from the security and exchange commission figure in line with generally accepted accounting principles (GAAP)
- Ongoing EPS is obtained by netting off any unusual one-time expenses or gains such as expense or gain derived from disposal of asset.
- Pro-forma EPS is obtained based on some specified set of assumptions.
3.2 DEBT

Debt represents the contributions made by third party into a business. The debt profile of any business can be structured into two: the long term debt and short term debt. The short term debt represents the amount of debt falling due within a year while the long term debt can be referred to as an amount of debt falling due over a year. The mix of long term debt and equity in the portfolio of a company or an organization is otherwise referred to as its capital structure [11-13]. There have been several arguments by different scholars that each of the capital source have its merit and demerit, hence management are required to find an optima capital mix that is suitable, in terms of reward or risk, to the shareholders.

According to Dimitris and Psillaki [9], capital structure refers to the percentage of capital deployed in a business by type and it is useful in deeming the risk level of an company. Debt introduces fixed cost in the production process whenever it is deployed. This makes capital structure decision very vital in financial status of organizations. Capital structure decisions are more important as there is the need for the management to maximize returns to all the relevant stakeholders while achieving competitive hedge. One of the measure used to reflect or proxy capital structure is the debt equity ratio.

3.3 Debt to Equity Ratio (DER)

The debt to equity ratio as the name implies measures the ratio of all debts including current liabilities to all equities. This ratio tends to establish the part of the owners capital used as collateral for all the debts in an organization and provides an insight or guide into the financial stature and risk of a firm. Debt equity ratio provides different perspectives to the business owners and the debt providers of the creditors. A low ratio indicates high level of funding by the business owners. Thus ensuring greater cover for the credit providers in the event of loss situation or decrease in the value of company’s asset. On the other hand, a high ratio or high percentage implies higher risk is borne by the creditors in case of company’s failure. Several authors such as Hapsoro & Husain, [14]; Kim & Choi, [15]; Moradi & Paulet, [16] and Suhaily, [17] opined that companies that are experiencing stable cash flows tend to maintain a higher debt equity ratio while those with the less stable cash flow tend to preserve a low debt equity ratio.

3.4 Theoretical Review

3.4.1 Pecking order theory

Pecking Order Theory proposed by Myers and Majluf (1984) as cited in (Shahar, 2015) assume perfect market just like Modigliani and Miller. Pecking Order Theory argues that decision on sources of financing depends on the preference order or internal financing mechanisms such as reserves and retain earnings; debt; equity. Hence, company maximizes their value by electing to finance new investments with cheapest available sources (Sheikh & Wang, 2010). In a situation where internal funds are not enough to finance investment opportunities, firms resolves either to or not acquire external financing. If they do, they will choose among the different external finance sources in such a way as to minimize additional costs of asymmetric information (Luigi & Sorin, 2009).

Therefore, issue of the debt should have effect on price when compared to equity issue. Since the theory provides that relationship exist among the three concepts of debt, equity and share price, it is useful for this study.

3.4.2 Empirical review

This section discusses the various researches done by other researchers concerning capital...
structure, return on equity and earnings per share. Although several researches have been conducted on capital structures, return on equity and earnings per share, few studies have been conducted on their combinations with divergent views. While some studies opines that there is a negative and significant of capital structure on earnings per share, some others found a positive and significant effect.

Alhassan [18] found that capital structure has a positive and significant impact on earnings per share and financial performance of Nigerian consumer goods companies from 2011 to 2020, using annual reports from fifteen consumer goods companies listed on the Nigerian stock exchange and a fixed effect regression. Using multiple regression analysis, Shenjaya, Haryanty, Tan, Valco, and Panggabean [19] investigated the impact of return on equity, current ratio, and inventory turnover on profits per share on Indonesian firms from 2015 to 2019. Return on equity, current ratio, and inventory turnover, alone and together, have a favourable and substantial influence on profits per share, according to the research. Tarigan, Ginting, and Edward [20] utilized smartPLS to test and assess the debt-to-equity ratio (capital structure) and current ratio to profits per share in various industrial sector manufacturing businesses listed on the Indonesia Stock Exchange between 2017 and 2019. While the liquidity ratio had a positive and substantial influence on profits per share, the leverage ratio (capital structure) had a negative and large impact on earnings per share, and return on equity was unable to moderate the debt-to-equity ratio's impact on earnings per share.

Sriyono and Fatmasari [1] used Garment and Textile firms listed on the Indonesia Stock Exchange to investigate techniques for increasing earnings per share through some of the factors. The approach of selective sampling was used. Purposive sampling is a technique for collecting data with a specific goal in mind. According to the research, capital structure and current ratio have a considerable impact on earnings per share. According to the findings, a lower capital structure ratio improves profits per share, whereas a stable current ratio affects cash flow, income, and hence earnings per share.

Using regression analysis, Efuntade, Efuntade, and Akintola [2] investigated the impact of capital structure on earnings per share of Nigerian conglomerate firms. The findings reveal that all capital structure parameters have a substantial influence on Nigerian enterprises’ earnings per share. Regression analysis was used by Efuntade, Efuntade, and Akintola [2] to investigate the impact of capital structure on earnings per share of Nigerian conglomerate firms. All capital structure factors have a considerable influence on earnings per share in Nigerian companies, according to the findings.

Bratamanggala [21] investigated if financial parameters such as Return on Assets, Price to Book Value, and Debt Equity Ratio had any effect on Earnings Per Share and came to the conclusion that they do.

Siyanbola, Olaoye, and Olurin [3] investigated the influence of gearing on company performance in Nigeria, specifically the performance of a few selected enterprises. Gearing has a beneficial influence on profitability, income, and earnings, according to the findings of the study. It was suggested that corporations hire qualified professionals to oversee the long-term financing that they use, and that these officers be aware of the risks associated with this type of financing.

3.4.3 Gap in literature

Having reviewed the studies above, it can be deduced that several researches have been done on capital structure, return on equity, returns on earnings, firms value and earning per share using one relation or others. However, studies relating debt structure to earnings per share is limited.

Hence the research was carried out to determine the effect of debt on earnings per share of companies in Nigeria.

3.5 Methods

This study classifies debt structure into three: the short term debt, the long term debt and the total debt and were all used together with earnings per share. The study adopt ex-post facto research design. All fifty-two manufacturing enterprises registered on the Nigerian Stock Exchange (NSE) as of December 2021 were included in the study’s population. Consumer products, healthcare, industrial goods, conglomerates, and agricultural products are the several types of manufacturing in Nigeria (NSE classification).
The manufacturing firms for this study were chosen using stratified and purposive selection procedures. The firms were divided into strata based on their market capitalization, and they were classified as "Big, Medium, and Small" using a stratified sample approach. Purposive sampling will be used to choose firms from each stratum whose annual reports are available for the ten-year period 2011–2021. Four firms from the consumer goods industry, three from the healthcare industry, and three from the industrial products industry will be chosen. As a result, the study's sample size was increased to 10 firms. The yearly financial records of the selected industrial firms were collated.

The regression model for the study is specified as follows:

\[ EPS = \beta_0 + \beta_1 \text{STDEQR}_t + \mu_0 \]
\[ EPS = \beta_2 + \beta_3 \text{LTDEQR}_t + \mu_1 \]
\[ EPS = \beta_4 + \beta_5 \text{TDEQR}_t + \mu_2 \]

Where:
- EPS is the earnings per share,
- STDER is the short term debt equity ratio
- LTDEQR is the long term debr equity ratio
- TDEQR is the total debt equity ratio
- \( \mu_0, \mu_1, \mu_2 \) are the error term; and
- \( \beta_0, \beta_1, \beta_2, \beta_4, \) and \( \beta_5 \) are parameters.

A priori is based on economic theories concerning the signs and magnitude of the parameter estimate. The expected outcome for this study is that debt exert positive and significant effect on earnings per share.

Before analysing the effect of debt on earnings per share, the data obtained were examined to comply with basic assumptions of linearity, homogeneity and outliers. So all the variables were transformed to ensure compliance. SPSS 28 was used for data analysis.

4. RESULTS AND DISCUSSION

4.1 Hypothesis One: There is No Significant Effect of Short Term Debt on Earnings Per Share

To verify this hypothesis, the ratio of short term debt to equity was regressed with earnings per share. The results as indicated in the Table 1.

The result from Table 1 below indicated that there is a very low correlation, \( R = 0.108 \) between short term debt to equity and earnings per share.

The regression model obtained is formulated as \( EPS = 55.45 - 5.62 \text{STDEQR} \)

Table 1. Table showing the regression of short term debt ratio to earnings per share

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R-square</th>
<th>Adj R-square</th>
<th>F change</th>
<th>Sig F</th>
<th>Durbin Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.108</td>
<td>.012</td>
<td>.043</td>
<td>.211</td>
<td>.651</td>
<td>1.008</td>
</tr>
</tbody>
</table>

Source: Data processed SPSS Version 28
The p-value, $p = 0.651$ indicated that there is no significant relationship between the variables short term debt and earnings per share at 5 per cent level of significance. The Durbin Watson Coefficient, $DW = 1.008$ is very close to unity. This implies the distribution is normally distributed. Hence the study fails to reject the null hypothesis. So there is no significant relationship between short term debt and earnings per share of manufacturing companies in Nigeria. This study is in disagreement with Sriyono & Fatmasari [1] which opined that short term debt enhances earnings per share.

4.2 Hypothesis Two: There is No Significant Effect of Long Term Debt on Earnings Per Share

To evaluate this hypothesis, the ratio of long term debt to equity was regressed against earnings per share. The results as indicated in the Table 2.

The result from Table 2 below indicated that there is average correlation, $R = 0.498$ between long term debt to equity and earnings per share. The coefficient of determination, $R$-square $= 0.248$. This implies 24.8 percent of variations in earnings per share is as a result of long term debt leaving the rest 75.2 percent to other variables.

The regression model obtained is formulated as $\text{EPS} = 83.62 - 0.49 \text{LTDEQR}$. This implies that a unit increase in long term debt will lead to a decrease in earnings per share by 0.49 ceteris paribus.

The p-value, $p = 0.025$ indicated that there is a significant relationship between the variables long term debt and earnings per share at 5 per cent level of significance. The Durbin Watson Coefficient, $DW = 1.234$ is very close to unity. Hence the study do reject the null hypothesis and presents that there is a significant relationship between long term debt and earnings per share of manufacturing companies in Nigeria.

The result of this study is in agreement with Badruzaman [4], Efuntade, Efuntade, & Akintola, [2], Siyanbola, Olaoye, & Olurin [3], Sriyono & Fatmasari [1] as the studies suggest that long term debt increase earnings per share.

4.3 Hypothesis Three: There is No Significant Effect of Total Debt on Earnings Per Share of Manufacturing Companies in Nigeria

To analyse this hypothesis, the ratio of total debt to equity was regressed against earnings per share. The results as indicated in the Table 3.

The result from Table 3 below indicated that there is a weak correlation, $R = 0.303$ between total debt to equity and earnings per share. The coefficient of determination, $R$-square $= 0.092$. This implies that total debt to equity contributes almost negligible amount to earnings per share.

The regression model obtained is formulated as $\text{EPS} = 69.96 - 0.303 \text{TDEQR}$. This implies that a unit increase in total debt will lead to a decrease in earnings per share by 0.303 ceteris paribus.

The p-value, $p = 0.0194$ indicated that there is a significant relationship between the variables long term debt and earnings per share at 5 per cent level of significance. The Durbin Watson Coefficient, $DW = 1.064$ is very close to unity. Hence the study do reject the null hypothesis and presents that there is a significant relationship between total debt and earnings per share of manufacturing companies in Nigeria.

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R-square</th>
<th>Adj R-square</th>
<th>F change</th>
<th>Sig F</th>
<th>Durbin Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.498</td>
<td>.248</td>
<td>206</td>
<td>5.938</td>
<td>.025</td>
<td>1.234</td>
</tr>
</tbody>
</table>

Source: Data processed SPSS Version 28

Table 2. Table showing the regression of long term debt ratio to earnings per share

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R-square</th>
<th>Adj R-square</th>
<th>F change</th>
<th>Sig F</th>
<th>Durbin Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.303</td>
<td>.092</td>
<td>.041</td>
<td>1.822</td>
<td>.0194</td>
<td>1.064</td>
</tr>
</tbody>
</table>

Source: Data processed SPSS Version 28

Table 3. Table showing the regression of total debt ratio to earnings per share
This study is supported by Badruzaman [4], Efuntade, Efuntade, & Akintola, [2]. Siyanbola, Olaoye, & Olurin [3], Sriyono & Fatmasari [1] among others.

5. CONCLUSION AND RECOMMENDATION

This study examined the effect of short term debt, long term debt and total debt on earnings per share of fifty-two manufacturing companies in Nigeria. To determine the main objective of this study, data was obtained from the annual reports of manufacturing companies. SPSS 28 was deployed to derive the regression of the ratio short term debt to equity, long term to equity and total debt to equity on earnings per share from 2011 to 2020. The study give further insight into the extent at which the independent varaibles affect the dependent variable.

Findings from the study showed that while short term debt exert insignificant effect on earnings per share, long term debt exercise significant effect on earnings per share. It is however quite amazing that total debt, a composite of short term debt and long term debt, jointly have significant effect on earnings per share of manufacturing companies in Nigeria. This implies that current liabilities do not have any effect on earnings per share of a manufacturing company in Nigeria.

This study further supports the Perking Order Theory which helps in explaining that management elects to finance their investment in the cheapest means available as the study illustrates that earning per share is reduced with the use of long term debt. Also it is evident that total debt depletes earning per share. So there is need for management to ensure the use of the best suitable method of financing in order to grow the wealth of a company.

The study therefore recommend that management should ensure optimal mix of long term debt and short term debt to attain a desired earnings per share.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES


APPENDIX

List of Selected Manufacturing Companies in Nigeria

1. 7-Up Bottling Company
2. Academic Press
3. African Paints (Nigeria)
4. Afrik Pharmaceuticals
5. Aluminium Extrusion Industries
6. Beta Glass
7. Cadbury Nigeria
8. CAP
9. Cement Company of Northern Nigeria
10. Champion Breweries
11. Chellarams
12. Dangote Cement
13. Dangote Flour Mills
14. Ellah Lakes
15. Evans Medicals
16. Fidson Healthcare
17. First Aluminium Nigeria
18. Flour Mills of Nigeria
19. FTN Cocoa Processors
20. GlaxoSmithKline Nigeria
21. Guinness Nigeria
22. Honeywell Flour Mill
23. International Breweries
24. Juli
25. June & Baker Nigeria
26. Lafarge Africa
27. Livestock Feeds
28. McNichols
29. Meyer
30. Morison Industries
31. Multi-Trex Integrated Foods
32. Multiverse
33. Nascon Allied Industries
34. Neimeth International Pharmaceuticals
35. Nestle Nigeria
36. Nigeria-German Chemicals
37. Nigerian Breweries
38. Nigerian Enamelware
39. Northern Nigeria Flour Mills
40. B.O.C. Gases
41. Okomu Oil Palm
42. Paints & Coating Industries
43. Pharma-Deko
44. Portland Paints & Products Nigeria
45. Premier Paints
46. Presco
47. PZ Cussons Nigeria
48. Thomas Wyatt Nigeria
49. Unilever Nigeria
50. Union Diagnostic & Clinical Services
51. Union Dicon Salt
52. Vitafoam Nigeria

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