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Effect of Total Equity Ratio on Financial Performance of Quoted Industrial Goods Firms in Nigeria

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ABSTRACT

This paper examined the effect of total equity ratio on financial performance of quoted industrial goods firms in Nigeria. An annual time series data was sourced from the financial statements of thirteen companies that were listed on the Nigerian Exchange Group (NEG) in the industrial goods sector between 2011 and 2022. This study employed panel econometric techniques which includes unit-root test, pooled least square test, fixed effect test, random effect test and Hausman tests. Variables such as total equity ratio, short-term debt ratio, long-term debt ratio, debt-equity ratio were used as independent variables while return on asset, and Tobin's Q were used as dependent variables. Findings revealed that total equity ratio had significant effect on financial performance of quoted industrial goods manufacturing firms in Nigeria which was predicated on R squared within group of 0.2599, between group of 0.0791, F- value = 12.20 and p-value = 0.0000 < 0.05 for fixed effect, this was supported with the result of Hausman test. The Hausman test had p-value = 0.0348< 0.05. The pooled test followed this assertion as F = 11.63 and p-value was 0.0000. The study concluded that total equity ratio had effect on financial performance of quoted industrial goods firms in Nigeria. In plain words, total equity ratio, short term debt ratio, long term debt ratio and debt equity ratio had effect on return on asset.

Keywords: Asset Structure, firm performance, equity finance, financial distress, debt.

I. INTRODUCTION

Financing decision has been identified as a major factor to corporate firms' performance and an influencer of business success or failure of most corporate organization in developing economies particularly in Nigeria (Eze, Okoye, Amahalu, & Obi, 2022). The survival of every business depends solely on the level of funds accumulated through internal or external sources for operational activities (Asen, Nwude, Idamoyibo, Ufodiama, & Udo, 2021). Capital structure has remained a leading factor that influences the liquidity and going concern of a firm (Ahmed & Amina, 2019). When a business idea is conceived, capital requirement and financing decision becomes the next line of action. A good mix of debt and equity source of finance is expected to boost the profitability of the business, but if not properly mixed, could adversely affect the performance of the firm (Aziz & Abbas, 2019). Capital structure has been an effective parameter in the hands of agencies and companies for valuation and measurement of performance. It is one of the highly recognized tools for credit rating in the money and capital markets (Akinbola, Zekeri, & Ojo, 2018). It is highly recognized as the most delicate aspect in financing a firm, as such, financial managers are very keen in making the best funding decision as far as debt and equity blend for the business for efficiency and effective operation (Ajayi & Araoye, 2017). Wealth maximization within competitive environment is the key concern of capital structure by shareholders (Akaji, Nwadialor, & Agubata, 2021). Most of the growth-oriented firms are now employing debt and

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equity mix, but what remained unsettled is the proportionate mix of debt and equity with respect to the cost (Abubakar & Garba, 2019). Ofulue, Ezeagba, Amahalu, and Obi (2022) categorized debt into two, long-term debt as well as short-term debt.

Unequivocally, notable among the relevance of capital structure is that it enhances the firms' ability to satisfy the requirements of different stakeholders as it indicates claims on the firm's assets, which include the equity components and debt components (Mulyana, Zuraida, & Saputra, 2018). In this regard, Abina and Akinola (2020) believe that adequate and convenient sources of fund and a structured capital remains a significant factor influencing the operation and performance of manufacturing firms in most developing countries. It is on this premises that this study examined the effect of total equity ratio on financial performance of quoted industrial goods manufacturing firms in Nigeria.

Debt and equity structure, which form the basic components of capital structure among firms, are associated with various levels of risks. Debt holders are found to exert lower control on the running of the firm as they only have access to a fixed rate of return and constant protection from contractual obligations with regard to their investment. Many firms do incline to greater percentage of leverage in their capital structure as a better strategy for reducing tax liability of the firms which cannot be achieved using 100% equity (Taqi, Khan & Anwar, 2020). On the other hand, equity holders are residual claimants who bear most of the risks and have greater control over the decisions of the firm (Aziz & Abbas, 2019). As noted by Olaniyan, Soetan, and Simon-Oke (2017) too much debt in the capital structure of firm can crowd out further investment. In view of this, an articulated capital structure will in no small measure assist firm to achieve an increasing level of growth while overcoming challenges posed by the business environment. Therefore, a study on the effects of total equity ratio on financial performance of quoted industrial goods manufacturing companies in Nigeria is vital and needs to be studied carefully. This study proxy financial performance by return on asset (ROA) and Tobin's Q.

As such the general objective is to examine the effect of total equity ratio on financial performance of quoted industrial goods firms in Nigeria, specifically it examines the effect of total equity ratio on financial performance.

II. LITERATURE REVIEW

Equity Structure

The equity structure of a firm refers to the composition of its equity capital, which includes ordinary shares, preference shares, and retained earnings. The decision whether to make use of equity finance depends on the availability of fund at the disposal of shareholder and also profitability of the firm. The implication of equity method of finance is that the firm would have enough cash on hand for growing the business and not under any unnecessary pressure to repay in the case of loss (Akinleye & Akomolafe, 2019).

Total Equity Ratio

The total equity ratio is used to determine how much leverage a company is using. Assessing a company's ability to manage its debts and fund its asset requirements is done through asset investments and equity levels (Abubakar & Garba, 2019). A compact that has higher value equity ratios is usually well-funded, meaning it uses less debt to meet its asset requirements (Aniefor & Onatuyeh, 2019). To measure how leveraged a company is and how well it funds its assets without taking on debt, total equity ratios combine total assets (current and non-current) and total equity (Olarewaju, 2019). The shareholder equity ratio is expressed as a percentage and calculated by dividing total equity by the total assets of the company. The result represents the amount of the assets on which the shareholders have a residual claim (Eze, *et al.*, 2022).

Short-Term Debt Ratio

The term short term debt refers to the aggregate borrowings from external sources whose maturity period is less than one year. As a matter of fact, the total amount of unpaid short-term debts is very vital in measuring the financial health of a business firm. According to Okoye (2019), the ideal financing option is short-term debt because it is thought to be more affordable for funding business operations.

Long-term Debt Ratio

Long-term debts as enunciated by Mulyana, *et al.* (2018) shows the percentage of assets financed with debt which is payable after more than one year. It includes bonds and long-term loans. A firm's long-term debt is all of its outstanding debt that has a maturity of more than a year (Thomas & Zechner, 2021).

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Debt-to-Equity Ratio

A financial ratio called the debt-to-equity ratio shows how much debt and shareholder equity were utilized to finance the assets of the company. (Abubakar & Garba, 2019). Debt-equity ratio is also a measure of financial leverage that compares the amount of overall debt and financial liabilities to the total amount of shareholders' equity. The debt-to-equity ratio evaluates a company's financial liquidity by comparing its total debt to its total equity. According to Egolum, Amahalu, and Obi (2019) the debt-to-equity ratio reveals the percentage of a company's funding that originates from investors and creditors. When debt exceeds equity, it means that loans are being used more frequently than shareholder funding. Akaji *et al.* (2021) says that debt-equity financing has a substantial and favorable impact on the success and performance of a firm in Nigeria. A ratio of one indicates that creditors and investors share equally in the company's assets. A ratio of less than one implies that the portion of assets supplied by stockholders exceeds the portion provided by creditors, while a ratio of greater than one indicates that the portion of assets provided by creditors exceeds the portion provided by stockholders. For most businesses, a ratio of one to one is deemed sufficient (Eze, *et al.*, 2022).

Return on asset (ROA)

Return on asset otherwise known as return on investment calculates the relationship between the net income of company and its total assets (Oke & Fadaka, 2021). It is an indicator of the firm's overall profitability and operating performance and efficiency in using all its assets. The return on assets (ROA) reveals how well management uses its resources to generate profits Prempeh, Sekyere, & Asare, 2016). It can be said that today, corporate managers are concerned about the efficiency of the use of assets to boost the company results. Corporate managers are more concerned with the efficiency of returns and how often an investment can generate inflows to boost the financial performance of the company (Foong & Malek, 2022). Likewise, the rising pressure of shareholders and the limited funds create more urge for finance managers to look for better alternative ways to improve asset productivity in order to preserve competitiveness. Therefore, company need to prioritize the performance of its assets. Return on assets can be calculated by finding the average of company's net-income and total assets (Hafeez, Shahbaz, Iftikhar, & Butt, 2018).

Tobin's Q

Q ratio was first introduced in the study of Kaldor (1966) to measure the relationship between a physical asset's market value and its replacement value. It was popularised in the study of Tobin (1970). Tobin's Q was described as the average of market valuation and replacement cost, i.e., the current market price for exchanging existing assets and the price in the market for newly produced commodities. We believe that this ratio has considerable macroeconomic significance and usefulness, as the nexus between financial markets and markets for goods and services. The limitation and deficiency in accounting measure approach is because they are based on current or historical firm profit. Tobin's Q is distinguished by its forward-looking nature and its reflection of the shareholders' expectations for the future performance of the firm (Oke & Fadaka, 2021). The financial performance indicator calculates the difference between the book value and market value of assets. It can also be calculated using the ratio of the company's total assets divided by its market capitalization plus its total debt (Kanakriyah, 2020). It is also worth to note that the critical decision as regards the performance of any business firm is not limited to maximizing returns to a range of organizational constituents, but also the ability of the firm to deal with its competitive environment most efficiently and effectively (Prempeh, *et al.*, 2016). Performance evaluation indices like Tobin's Q are action guide from what it is towards what it should be (Ajayi & Araoye, 2017).

THEORETICAL FRAMEWORK

Agency Cost Theory

The concept of agency cost theory was introduced and established by Berle and Means in 1932 in response to the constant weakness in equity ownership of many companies which causes ownership and control to be disjointed. These deficiencies gave managers the privilege to seek after their own particular interest rather than the interest of shareholders (Jensen & Ruback, 1983). In theory, shareholders are known to be outright owner of firm and the reason for undertaking of its executives is simply to work in accordance with shareholders' interests and to boost the shareholders wealth. They are saddled with the responsibility to run the firm in such a way that income and benefits of the firm will be expanded. In furtherance of the postulation of Berle and Means (1932) with Miller and Modigliani (1958) irrelevant theory, Jensen and Meckling (1976)

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theorized that the segregation of firm's ownership from control gave rise to agency problem and breeds asymmetry information whereby the managers would have more information than the owners of the business.

This theory placed more emphasis on the need for effective selection of debt-equity mix as a means of reducing cost of capital and increasing the performance of firm through returns. They observed that agency problems stem from conflict of interest and goal congruence between the managers and the shareholders while selecting the structural arrangement of sources of funds. Ofulue, *et al.* (2022) observed that managers are fond of pursuing fringe benefit from work by going for profitable and risky projects just to attain their personal interests rather than pursuing the shareholders wealth maximization objective of the firm. They believe that they stand to gain but little when it comes to sharing ratio of returns, because of this, they have consideration for incentives and rewards associated with each source of capital before shareholder interest.

In response to this unwelcome development, most shareholders may decide to incur certain costs, known as agency costs, to provide effective monitoring for managers activities and consequently constrained their excesses. The followers of this theory like Ogbulu and Emeni, (2012), Olarewaju, (2019), Aniefor and Onatuyeh, (2019) opined that this clash of interest can best be resolved by the shareholder through proportional increase in debt by investing in less productive securities as this will infuriate debt holders and cause them to react because they are entitling to a fixed interest. In a situation whereby rate of return from an investment is greater than the debt face-value, shareholders stand to gain more proportion of the profit but if otherwise, the creditors will bear the brunt because shareholders loss are limited to their investment in such security. They submitted that asset substitution can be the best option in this regard because the consequential loss does not affect the shareholders but the debt holders.

Pecking Order Theory

The Pecking order theory was created in response to financing choice and performance of firms as proposed by Donaldson in 1961 but later popularized and become vital influential theories of investment in the study published by Myers in 1984 titled "The capital structure puzzle". The theory explained that financial managers have preference for equity source as a means of financing their business activities. This theory organized the financial wellsprings of firms according to their cost effectiveness. They see inward supports (retained earnings) as the first approach in financing firm activities, and when this has been exhausted, they can contract debt as this will reduce the cost (Rafiuddin & Rafiqul, 2020). By implication, pecking order theory as noted by (Bhama, Jain, and Yadav, (2017) tries to explain the existence of financial hierarchy in financing firm activities. First is retained earnings, second is debt finance (short and long term) and lastly is equity finance. The theory argued that most firms consider the chain of importance as regard financial sources and incline toward inward funding in situations when it is accessible, and when external funding is needed, debt is preferable over equity. The issuing of new shares, or equity financing in this case, signifies the introduction of external investment in the business.

Empirical Reviews

The relationship between capital structure and financial performance has been extensively studied in the literature, and the findings are often inconsistent and contradictory. Some studies have found a positive relationship, suggesting that an optimal capital structure can improve financial performance by reducing costs, increasing efficiency, and enhancing investor confidence. On the other hand, some studies have found a negative relationship, suggesting that high levels of debt can lead to financial distress, increase risk, and negatively impact financial performance. Meanwhile, some studies have found no significant relationship between capital structure and financial performance, suggesting that other factors such as industry, size, and management skills may play a more important role in determining financial performance. The contradictory findings may be due to various factors, including differences in sample size, industry, methodology, and time. Therefore, it's important to consider the specific context and limitations of each study when interpreting the results.

Eze *et al.* (2022) examined the interconnectedness between the quoted industrial goods manufacturing firms on capital structure and their bottom-line profit in Nigeria from 2008 to 2020. The study represented capital structure with debt-to-equity ratio (DER), short term debt ratio (STDR) and long term debt ratio (LTDR), while return on capital employed (ROCE) was employed as an indicator for bottom line profit. Findings from the research indicated a statistically significant

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positive correlation between the long-term debt ratio and the short-term debt ratio with Return on capital employed (ROCE), while, a significant negative relationship was found between debt-to-equity ratio and ROCE. Premised on the result, the study suggested reduction in the interest attach to debt by Bankers and debt providers in order to enhance the effectiveness of industrial goods manufacturing firms in Nigeria. The research study submitted that lower cost of debt financing will helps to bring down the required rate of return on the financed capital project, thus, improving its profit margins. This present study differed as it employed panel fixed effect and random effect as estimation techniques.

For the period between 2010 and 2018, Eneh, Okoye, Nwosu and Anugwu (2022) examined the nexus between firm profitability, firm age and debt of consumer goods manufacturing firms in Nigeria. Regression techniques and Ex-post facto research design are used in this study. The research findings demonstrated that the total debt of Nigeria consumer goods manufacturing firms that are listed on the Nigeria Exchange group (NEG) have a substantial correlation with their profitability, even though the company's age was found to maintain insignificant negative relationship on the total amount of debt owed by the companies.

Etale, Edoumiekumo, Kpolode, and Nkak (2020) examined the nexus between quoted industrial goods manufacturing companies, financial structure, and performance between 2014 and 2019 in Nigeria. using multiple regression technique. The dependent variable was proxy with return on equity (ROE) while the independent variables was measured by non-current debt to total assets (NCD), current debts to total assets (CD) and total debts to equity (TDE). The research findings show that NCD and TDE significantly related with return on equity. TDE on the other hand exhibit negative influence on ROE. In lieu of their findings, it was recommended that firms should prioritize long-term debt financing over equity.

III. METHODOLOGY

This study employed panel econometric techniques to unveiled the effects of total equity ratio on the financial performance of quoted industrial goods firms in Nigeria. This panel econometric approach includes unit-root test, pooled least square test, fixed effect test, random effect test and Hausman tests.

Sources of Data

To achieve the objectives of this study, an annual time series data was sourced from the financial statements of the quoted thirteen industrial goods manufacturing firms as listed on the Nigerian Exchange Group from 2005 to 2022. Variables such as total equity ratio, short-term debt ratio, long-term debt ratio and debt-equity ratio were used as independent variables while return on asset and Tobin's Q was used as dependent variables.

Description of Variables and Measurements

Tabular Presentation of Description of variables and Measurements

Variables	Measurement of Variable
Dependent Variables	
Return on Asset (ROA)	Profit after interest and tax/Total assets (PAT/TA)
Tobin's Q	Profit after interest and tax/Shareholders' funds (PAT/SF)
Independent Variables	
Total equity ratio (TER)	Total equity/Total asset (TE/TA)
Short term debt ratio (STDR)	Short-term debt/Total asset (STD/TA)
Long term debt ratio (LTDR)	Long-term debt/Total assets (LTD/TA)
Debt equity ratio (DER)	Total debt/Total equity (TD/TE)

Source: Compiled by the Researcher, (2024)

Model Specification

The model of this study used Return on assets (ROA) and Tobin's q as proxy for financial performance and TER, STDR, LTDR, DER as proxy for the independent variables.

$$ROA = f\ (TER, RR, STDR, LTDR, DER)$$

$$Tobin's\ Q = f\ (TER, RR, STDR, LTDR, DER)$$

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By taking the cognizance of the nature of data used for this study, which encompasses time series and cross-sectional data, these models were stated econometrically as:

$$ROA_{it} = f\ (\beta_0 + \beta_1 TER_{it} + \beta_2 STDR + \beta_3 LTDR_{it} + \beta_4 DER_{it} + \mu_{it})$$

$$Tobin's\ Q_{it} = f\ (\beta_0 + \beta_1 TER_{it} + \beta_2 STDR_{it} + \beta_3 LTDR_{it} + \beta_4 DER_{it} + \mu_{it})$$

Where:
ROA = Return on Asset
TOBIN'S Q = Market-Based Performance Indicator
TER = Total Equity Ratio
RR = Retention Ratio
STDR = Short-term Debt Ratio
LTDR = Long-term Debt Ratio
DER = Debt-Equity Ratio
f = As earlier defined
β_o = constant parameter
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = co-efficient of associated variables.
i = cross –sectional dimension and ranges of the firms.
t = Time series dimension and ranges of periods.
it = it shows individual series and the dimension of time in the model
μit = it shows the occurrence of the stochastic term in the model

IV. Results and Discussions

This section of the study is concerned with analysis and interpretation of data collected in other to achieve the objectives of the study. For this purpose, it employed panel data analysis for its construct and analytical purpose, which explained the cause of the variation in the financial performance of the selected industrial goods manufacturing companies in Nigeria. This study used secondary data from thirteen (13) companies namely Austin LAZ and Company Plc, Berger Paints Plc, Beta Glass Plc, BUA Cement Plc, CAP Plc, Cutix Plc, Dangote Cement Plc, Greif Nigeria Plc, Lafarge Africa Plc (WAPCO), Meyer Plc, Notore Chemical Ind.Plc, Premier Paints Plc and Tripple Gee and Company Plc from 2005 to 2022. Fixed effect, random effect and pooled effect was used and Hausman test was employed to determine the most appropriate model for the objective of the study while F- statistics test was utilized to validate the hypothesis of the research.

Unit root test of variable used to test for the stationarity of the data used

Unit root test enable the researcher to determine the stationarity of the data to be used. It informs the researcher on the suitability of the data to be used for estimation purpose.

Table 4.1. Unit root test for the eight variables under investigation

Variable	Unadjusted t	Adjusted t	p-value	Remark
Return on Asset (ROA)	-10.2723	-0.8222	0.0055	Significant
Tobin's q	-11.6195	24.1834	0.0000	Significant
Total equity ratio (TER)	-13.3989	-5.4301	0.0000	Significant
Short term debt ratio (STDR)	-11.9651	-3.9414	0.0000	Significant
Long term debt ratio (LTDR)	-16.2132	-10.2305	0.0000	Significant
Debt equity ratio (DER)	-12.1685	-4.6255	0.0000	Significant

Source: Researcher's Computation (2024) using Stata

Table 4.1 presents the unit root test for the data used for the study. The variable operationalized through unit root tested are Return on asset, Tobin's q, Total equity ratio, Short term debt ratio, Long term debt ratio, and Debt equity ratio. It was observed that the critical p-value for each of the variable is 0.000, which is lower than 0.05 level of significance. Thus, unit root is absent in the data set, while the data are stationary and fit to be subjected to panel data analysis.

4.2 Effect of total equity ratio on financial performance of quoted industrial goods manufacturing firms in Nigeria

In order to test for the objective of the study, which is to examine the effects of total equity ratio on financial performance of quoted

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industrial goods manufacturing firms in Nigeria, panel data analysis was employed. It carried out fixed effect test, random effect test, Hausman test and pooled test. The Hausman test is to determine the most suitable model for the objective. The variables operationalized for this purpose are Return on asset, total equity ratio, short-term debt ratio, long-term debt ratio and debt equity ratio.

Table 4.2 Effect of total equity ratio on financial performance of quoted industrial goods manufacturing firms in Nigeria (Fixed effect)

ROA	Coef.	Std. Err.	t	P>|t|	95% Conf. Interval	
TER	.495451	.0804552	6.16	0.000	.3363767	.6545252
STDR	.0687699	.0307963	2.23	0.027	.0078802	.1296596
LTDR	.0934745	.0566581	1.65	0.101	-.0185487	.2054978
DER	-2.07e-08	1.06e-08	-1.96	0.052	-4.17e-08	2.10e-10
Cons	-.2140219	.05011	-4.27	0.000	-.3130984	-.1149455

R-sq: within = 0.2599 between = 0.0791 F(4,139) = 12.20
Prob> F = 0.0000 F test that all u_i=0: F(12, 139) = 5.07 Prob> F = 0.0000
Source: Researcher's Computation (2024) using Stata

Table 4.3 Effect of total equity ratio on financial performance of quoted industrial goods manufacturing firms in Nigeria (Random effect regression result)

ROA	Coef.	Std. Err.	z	P>|z|	95% Conf. Interval	
TER	.4021826	.0650633	6.18	0.000	.2746609	.5297044
STDR	.0659922	.0310909	2.12	0.034	.0050551	.1269292
LTDR	.0653766	.0581437	1.12	0.261	-.0485829	.1793362
DER	2.22e-09	8.97e-09	0.25	0.805	-1.54e-08	1.98e-08
Cons	-.1744065	.0480276	-3.63	0.000	-.2685389	-.0802741

R-sq: within = 0.2326 between = 0.2513 overall = 0.2095 Wald chi2(4) = 41.05
corr(u_i, X) = 0 (assumed) Prob> chi2 = 0.0000 rho | .12800307
Source: Researcher's Computation (2024) using Stata

Table 4.4 Hausman fixed random Coefficients

	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
TER	.495451	.4021826	.0932683	.0547274
STDR	.0687699	.0659922	.0027777	.0096139
LTDR	.0934745	.0653766	.0280979	.0142835
DER	-2.07e-08	2.22e-09	-2.29e-08	6.69e-09

Prob>chi2 = 0.0348
Source: Researcher's Computation (2024) using Stata

Table 4.2 shows the fixed effect test. It was observed that the R squared for within group was 0.2599, between group was 0.0791. The F-value was 12.20 while the critical p-value was 0.0000 which was lower than 0.05 level of significance. Thus, total equity ratio has significant effect on financial performance of quoted industrial goods manufacturing firms in Nigeria. Furthermore, Table 4.3 shows the random effect test of the same objective. It was observed that The R square for within group was 0.2326 and between group was 0.2513. The critical p-value was 0.000, which was lower than 0.05 level of significance. This also affirmed the fact that total equity ratio has significant effect on financial performance of quoted industrial goods manufacturing firms in Nigeria.

Table 4.4 presents the Hausman test. The p-value was 0.0348, which was lower than 0.05 level of significance. Thus, the fixed effect is the best model for objective one, which seeks to examine the effect of total equity ratio on financial performance of quoted industrial goods manufacturing firms in Nigeria. This implied that the variation in the dependent variable (return on asset) as explained by the independent variables (total equity ratio, short term debt ratio, long term debt ratio and debt equity ratio) is due to the entity factor (company) as explained in equation.

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$$\text{ROA} = -0.21 + ter0.49 + stdr0.69 + ltdr0.09 - der2.07 \ldots 4.1$$

Table 4.5 Effect of total equity ratio on financial performance of quoted industrial goods manufacturing firms in Nigeria (Pooled OLS Regression Result)

Source	SS	Df	MS
Model	2.66038587	4	.665096467
Residual	8.63499491	151	.057185397
Total	11.2953808	155	.072873424

F(4, 151) = 11.63 Prob> F = 0.0000 R-squared = 0.2355 Adj R-squared = 0.2153
Root MSE = .23913
Source: Researcher's Computation (2024) using Stata

Table 4.6 Pooled OLS Regression Result

ROA	Coef.	Std. Err.	T	P>|t|	95% Conf. Interval	
TER	.3393373	.0539159	6.29	0.000	.2328102	.4458643
STDR	.0610224	.0321773	1.90	0.060	-.0025535	.1245982
LTDR	.0303889	.0604293	0.50	0.616	-.0890073	.1497852
DER	1.87e-08	7.71e-09	2.42	0.017	3.43e-09	3.39e-08
Cons	-.14709	.03692	-3.98	0.000	-.2200365	-.0741435

Source: Researcher's Computation (2024) using Stata

The pooled test revealed that F- value was 11.63 and p-value was 0.0000 while the R square was 0.2355. This was presented in Table 4.5 and Table 4.6, By implication, the extent to which the predicting variables (total equity ratio, short term debt ratio, long term ratio and debt equity ratio) explained the variation in the dependent variable (return on asset) is 23.55 percent while it is statistically significant P-value is 0.0000. Thus, the null hypothesis one of the study, which states that, total equity ratio does not have any significant effect on the financial performance of industrial goods manufacturing firms in Nigeria was rejected. As such, it was inferred that total equity ratio have statistical significant effect on the financial performance of industrial goods manufacturing firms in Nigeria.

4.4 Effect of total equity ratio on financial performance of quoted industrial goods manufacturing firms in Nigeria using Tobin's q

Table 4.7 shows the fixed effect test for the effect of total equity ratio on financial performance of quoted industrial goods manufacturing firms in Nigeria using Tobin's q as proxy for financial performance which is the dependent variable, while total equity ratio, short term debt ratio, long term debt ratio and debt equity ratio are the proxy for the independent variables. It was observed that the R square for within group was 0.0183 and between group was 0.4205 while the F statistics was 0.65 and critical p-value was 0.6897. This implied that total equity ratio has no significant effect on financial performance of quoted industrial goods manufacturing firms in Nigeria.

Table 4.8 presents the random test. The R square for within group was 0.0017 and between group was 0.7323, the p-value was 0.2406 which was lower than 0.05 level of significance.

The Hausman test was shown in Table 4.9. The p-value was 0.1016 which was greater than 0.05. Hence, random effect is the preferred model using Tobin's q as proxy for productivity.

Likewise, Table 4.10 and Table 4.11 shows the pooled test. The F value was 1.37, P-value was 0.2461 this implied that the null hypothesis which is total equity ratio does not have any significant effect on the financial performance of industrial goods manufacturing firms in Nigeria was accepted. The R-squared was 0.0351, which means that 3.51 percent of the dependent variable (Tobin's q) was accounted for by the independent variables (total equity ratio, short term debt ratio, long term debt ratio and debt equity ratio).

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Table 4.7 Effect of total equity ratio on financial performance of quoted industrial goods manufacturing firms in Nigeria using Tobin's q, (Fixed effect)

Tobin's q	Coef.	Std. Err.	T	P>|t|	95% Conf. Interval	
TER	21.46548	21.70111	0.99	0.324	-21.44147	64.37243
STDR	.0212454	8.306643	0.00	0.998	-16.40247	16.44496
LTDR	-18.35694	15.28235	-1.20	0.232	-48.57286	11.85898
DER	3.39e-07	2.86e-06	0.12	0.906	-5.31e-06	5.99e-06
Cons	-6.75216	13.51613	-0.50	0.618	-33.47595	19.97163

R-sq: within = 0.0183 between = 0.4205 overall = 0.0007 F(4,139) = 0.65
Prob> F = 0.6300F test that all u_i=0: F(12, 139) = 0.76 Prob> F = 0.6897
Source: Researcher's Computation (2024) using Stata

Table 4.8 Effect of total equity ratio on financial performance of quoted industrial goods manufacturing firms in Nigeria using Tobin's q, (Random effect regression result)

Tobin's q	Coef.	Std. Err.	Z	P>|z|	95% Conf. Interval	
TER	-21.11455	12.52065	-1.69	0.092	-45.65458	3.425485
STDR	-6.139509	7.472388	-0.82	0.411	-20.78512	8.506102
LTDR	-18.91235	14.03324	-1.35	0.178	-46.41699	8.592294
DER	-4.00e-07	1.79e-06	-0.22	0.823	-3.91e-06	3.11e-06
Cons	18.33482	8.573769	2.14	0.032	1.530544	35.1391

R-sq: within = 0.0017 between = 0.7323 overall = 0.0351
Wald chi2(4) = 5.49 corr(u_i, X) = 0 (assumed) Prob> chi2 = 0.2406
Source: Researcher's Computation (2024) using Stata

Table 4.9 Hausman fixed random Coefficients

	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
TER	21.46548	-21.11455	42.58002	17.4704
STDR	.0212454	-6.139509	6.160755	3.442593
LTDR	-18.35694	-18.91235	.5554088	5.672433
DER	3.39e-07	-4.00e-07	7.38e-07	2.19e-06

Prob>chi2 = 0.1016
Source: Researcher's Computation (2024) using Stata

Table 4.10 Effect of total equity ratio on financial performance of quoted industrial goods manufacturing firms in Nigeria using Tobin's q, (Pooled OLS Regression Result)

Source	SS	Df	MS
Model	16930.1687	4	4232.54218
Residual	465674.146	151	3083.93475
Total	482604.315	155	155 3113.57623

F(4, 151) = 1.37 Prob> F = 0.2461 R-squared = 0.0351 Adj R-squared = 0.0095
Root MSE = 55.533
Source: Researcher's Computation (2024) using Stata

Table 4.11 Pooled OLS Regression Result

Tobin's q	Coef.	Std. Err.	T	P>|t|	95% Conf. Interval	
TER	-21.11455	12.52065	-1.69	0.094	-45.85284	3.623748
STDR	-6.139509	7.472388	-0.82	0.413	-20.90345	8.624427
LTDR	-18.91235	14.03324	-1.35	0.180	-46.63921	8.81451
DER	-4.00e-07	1.79e-06	-0.22	0.824	-3.94e-06	3.14e-06
Cons	18.33482	8.573769	2.14	0.034	1.394779	35.27487

Source: Researcher's Computation (2024) using Stata

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V. Discussion Of Result

This research exercise examined the effects of total equity on the financial performance of quoted industrial goods manufacturing firms in Nigeria. It discovered that total equity ratio has effect on financial performance of quoted industrial goods manufacturing firms in Nigeria as total equity ratio has effect on return on asset. This agreed with the work of Taqi, *et-al.,* (2020); Olaniyan, *et-al.,* (2017) and Nguyen and Nguyen (2020). By implication, total equity ratio, short term debt ratio, long term ratio and debt equity ratio are germane to the survival of manufacturing companies in Nigeria. This impact is predicated on the companies' goodwill and brand of the companies sampled. However, the change in year though had significant effect, the companies' goodwill and brand is a better model for the profitability and financial performance of the companies. In other words, companies will perform better financially, if they are protecting and promoting the goodwill and brand by not undermining companies' product quality of products and standardized product, which will enable and encourage better patronage from consumers of their products. Also, the variation in the financial performance shows that companies in Nigeria that the total equity ratio, short term debt ratio, long term ratio and debt equity ratio should not be undermined by Nigeria industrial goods manufacturing companies. The rate of return on asset is very important to companies' survival in Nigeria.

VI. Conclusion and Recommendation

The research finding revealed that total equity ratio has significant effect on financial performance of quoted industrial goods manufacturing firms in Nigeria which was predicated on R squared within group of 0.2599, between group of 0.0791, F- value = 12.20 and p-value = 0.0000 < 0.05 for fixed effect, this was supported with the result of Hausman test. The e test had p-value = 0.0348< 0.05. The pooled test followed this assertion as F = 11.63 and p-value was 0.0000. Based on the findings of this research work, the study concluded that total equity ratio has significant positive effect on financial performance of quoted industrial goods manufacturing firms in Nigeria. In plain words, total equity ratio, has effect on return on asset.

Findings and conclusion of this work made it pertinent to recommends that:

i. Government policies should encourage, promote, enhance, and ensure that industrial goods manufacturing companies in Nigeria have adequate access to bond and securities.
ii. Manufacturing companies in Nigeria should formulate policies and action plan on the access and management of debt.

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