

Capital Structure and Firm Performance: An Empirical Study of Manufacturing Companies in Nigeria

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Abstract

This study examined the impact of capital structure on firm performance of some selected manufacturing companies in Nigeria. The annual financial statements of five manufacturing companies listed on the Nigerian stock exchange ranging from 2014-2018 were used for this study. The study used fixed effect regression model to test the significant impact of capital structure on firm's performance, Hence, return on asset (ROA), return on equity (ROE) and earnings per share EPS were used as proxies for firms performance while equity ratio and debt ratio as indicators for capital structure, the finding reveal that capital structure has positive significant effect on financial performance of selected firms in Nigeria. The study recommends that the manufacturing companies should implement policies that will encourage increase in their profit after tax, dividends and turnover as these variables can lead to a positive significant change in the company's performance as well as the market capitalization value.

Keywords: capital structure, performance, equity, fixed effect model, debt ratio, equity ratio.

1. Introduction

One of the most contentious issues in the theory of finance during the past quarter century has been the theory of capital structure. According to investopedia, the capital structure is how a firm finances its overall operations and growth by using different sources of funds. Debt comes in the form of bond issues or long term notes payable, while equity is classified as common stock, preferred stock or retained earnings, short term debt such as working capital requirements is also considered to be part of the capital structure.

Capital structure can be a mixture of firms long-term debt, short term debt, common equity and preferred equity. When analysts refer to capital structure, they are most likely referring to a firm's debt- equity (D/E) ratio which provides insight into how risky a company is. It is the goal of company management to find the optimal mix of debt and equity also referred to as the optimal capital structure.

Over the years, researchers and academicians are performing theoretical and empirical studies on capital structure, but it first drew the attention to financial economists from Modigliani and Miller's (1958) "irrelevance theory of capital structure" now referred to as MM theory. Previous studies have suggested that there is an optimal capital structure; one that maximizes the cost of capital thus striking a balance between risk and return. However a précis method for determining a firm's capital structure has not been established. Financial managers strive to find the optimal capital structure, both in the short and long run (Tony and Green 2005). The task of maximizing the firm's financial performance can be achieved to a large extent once financial managers identify the determinants of its capital structure. An optimal capital structure mix enhances financial performance and share holders' wealth.

2. Statement of the problem

The impact of capital structure on corporate performance in Nigeria has been an issue of concern to researchers and there is still no conclusive empirical evidence on the subject.

Firms in Nigeria are faced with financing decisions on the appropriate capital structure mix that will be suitable for the organization and such financing decisions are crucial to the profitability of the firm. Investors in Nigeria rarely consider the importance of the details on the capital structure mix and how that mix eventually affects the performance of the firm. Financial constraints have been a major factor affecting corporate firms performance in developing countries especially Nigeria. The basis for the determination of optimal capital structure of corporate sectors in Nigeria is the widening and deepening of various financial markets. Akeem et al (2014) assert that the corporate sector is characterized by a large number of firms operating in a largely deregulated and increasingly competitive environment. Since 1987, financial liberalization has changed the operating environment of firms, by giving more flexibility to the Nigerian financial managers in choosing their firms capital structure. This financing decision is crucial to the firm's profitability.

This paper therefore examines the extent to which capital structure impacts on the profitability of companies listed on the Nigerian stock exchange during the period of 2014-2018. The findings will contribute to existing finance literature on the effect of capital structure on the performance of listed firms in Nigeria.

3. Objectives of the study

The main objective of this study is to determine the effect of capital structure on corporate performance of Nigerian quoted firms. The specific objectives derived from the major objectives are:

1. To determine the effect of capital structure on return on assets
2. To ascertain the relationship between capital structure and return on equity
3. To ascertain the effect of capital structure on earnings per share.

4. Research questions

The following research questions were formulated for this study.

1. To what extent does capital structure affect return on assets?
2. To what extent does capital structure impact on return on equity?
3. To what extent does capital structure affect earnings per share?

4. Hypotheses

The following hypotheses were formulated for this study.

H₀₁: Capital structure has no significant impact on return on assets

H₀₂: capital structure has no significant impact on return on equity

H₀₃: capital structure has no significant impact on earnings per share.

6: Literature Review

6.1 Conceptual Review

A Company's capital structure is arguably one of its most important choices. From a technical perspective, the capital structure is defined as the careful balance between equity and debt that a business uses to finance its assets, day to day operations and future growth (Kateri, 2014). The capital structure of a firm is actually a mix of different securities (Abor, 2005). According to Kenon (2019), there are two forms of capital: equity capital and debt capital. Each type of capital has its benefits and draw backs, and a substantial part of wise corporate stewardship and management is attempting to find the perfect capital structure regarding risk/reward payoff for shareholders. Capital structure describes the proportionate relationship between debt and

equity. While debt is majorly made up of long term loans such as debentures, equity includes paid up share capital, share premium, reserves, and surplus or retained earnings (Owolabi and Inyang , 2012). The capital structure decision is crucial for any business organization. The decision is important because of the need to maximize returns to various organizational constituencies, and also because of the impact such a decision has on a firm's ability to deal with its competitive environment.

6.2: Capital structure and its theories

Capital structure means a combination of all long term sources of finance. It includes equity share capital, reserves and surplus, preference share capital, loan, debentures and other long term sources of finance. A company has to decide the proportion in which it should have its own finance and outsiders finance particularly debt finance, based on the proportion of finance, weighted average cost of capital (WACC) and value of a firm are affected. There are four approaches to this, viz. net income, net operating income, traditional and M&M approach, Borad (2019).

According to Borad 2019, Capital structure is the proportion of all types of capital viz. equity, debt, preference etc. it is synonymously used as financial leverage or financing mix. Capital structure deals with the question of what should be the ratio of debt to equity, this question answers the to meeting the objectives of the firm which is the financing decision to maximize shareholders wealth or increase the value of the firm and the question of if a change in the financing mix would have any impact on the value of the firm or not. This question is important because some theories believe that financial mix has an impact on the value and others believe it has no connection. Financial leverage is the extent to which a business firm employs borrowed money or debts. In financial management, it is a significant term and it is a very important decision in a business.

Important approaches to financial leverage or capital structure or financing mix are as follows:
The net income approach: of Capital structure was propounded by David Durand in 1952.this approach states that firm can increase its value or lower the cost of capital by using debt capital. He was in favor of financial leverage decision. According to him, a change in financial leverage would lead to a change in the cost of capital. In short, if the ratio of debt in the capital structure increases, the weighted average cost of capital decreases and hence the value of the firm increases.

The Net operating income approach: Durand also provided the Net operating income approach which is opposite of the net income approach and says that the weighted average cost of capital (WACC) remains constant. It believes in the fact that the market analyses a firm as a whole and discounts at a particular rate which has no relation to debt-equity ratio. If tax information is given, it recommends that with an increase in debt financing WACC reduces and the value of the firm will start increasing.

The traditional approach: says that the cost of capital is a function of the capital structure. It believes in an optimal capital structure which implies that at a particular ratio of debt and equity, the cost of capital is at minimum and the value of the firm is maximized.

Modigliani and Miller approach: is a capital structure approach named after Franco Modigliani and Merton Miller. Their Seminal work was the genesis of the debate of relevance or non relevance theory amongst researchers in capital structure analysis.

MM Theory had two propositions.

- Proposition 1: stated that the capital structure is irrelevant to the value of the firm. The value of two identical firms would remain the same and value would not be affected by the choice of finance adopted to finance assets. The value of a firm is dependent on the expected future earnings when there are no taxes.
- Proposition 2: states that the financial leverage boosts the value of a firm and reduces WACC. This is when tax information is available.

Previous research submits that there is an optimum capital structure which maximizes the value of the firm and simultaneously minimizes the cost of capital, therefore striking a balance between risk and return. But giving a precise method for determining a firm's optimal structure has not yet been possible (Gitman & Zutter, 2010). After MM propositions, many studies focused on the optimal capital structure stating that the MM theory is based on unrealistic assumptions such as perfect capital markets bringing about further research on the subject. This brought forth four major theories of capital structure, after Modigliani and Millers (1958)

Capital Structure Theories.

The revised version of MM Theory, incorporating tax benefit argued that under market imperfection where interest payments are tax deductible, firm value will increase with the level of financial leverage (Modigliani & Miller, 1963).

MM by incorporating tax benefits as determinants of the Capital structure of firms, proposed that since interest is a tax deductible expense, firms should use as much debt capital as possible in order to maximize their value. Miller (1977) argued that a firm could generate higher tax income by increasing the debt-equity ratio and this additional income would result in a higher pay-out to stock holders and bond holders but the value of the firm need not increase. Higher taxes on interest payments than on equity returns reduce or eliminate the advantage of debt finance to the firm

Trade off Theory:

The trade-off theory was first developed by Modigliani and Miller, (1958). It states that target debt-equity ratio is approached at the point where the tax advantage of debt is offset by the costs of prevailing market imperfection. A firm's optimal debt ratio is usually viewed as determined by a trade off of the costs and benefits of borrowing. Firms balance tax savings from debt against dead weight bankruptcy costs. The key implications of the theory is that leverage exhibits target adjustments so that deviations from the target are gradually eliminated (Myers, 1984).

Myers (1984) proposed the Static Trade –off Theory that supports the relevance of capital structure. This theory suggests that firms have optimal capital structure and they move towards the target, it further emphasized that when debt is employed in capital structure, firms are faced with the challenges of tax benefit and bankruptcy cost, thus the need for trade- off between the two.

Pecking Order Theory:

Pecking order theory proposes that companies prioritize their sources of financing from internal financing to equity according to the law of least effort or of least resistance, preferring to raise equity as a financing means of last resort. The theorists argued that there is an asymmetric information problem between managers and investors. Investors would like to discount firms' new securities when they are issued, and thus managers can anticipate price discounts in advance. (Myers & Majluf 1984).

The conclusion drawn from the asymmetric information theories is that there is a hierarchy of firms' preferences with respect to the financing of their investments. (Myers & Majluf 1984) "This Pecking order" theory suggests that firms will initially rely on internally

generated funds i.e. undistributed earnings, where there is no existence of asymmetry they will turn to debt if additional funds are needed and will issue equity to cover any remaining capital requirements. The order of preferences reflects the relative costs of various financing options. The Pecking order hypothesis suggests that firms are willing to sell equity when the market overvalues it. (Myers, 1984; Chittenden et al 1996). This is based on the assumption that managers act in favor of the interest of existing shareholders, Myers and Majluf, (1984), maintain that firms will prefer internal sources to costly external finance. Thus, according to the Perking order hypothesis, firms that are profitable and therefore generate high earnings are expected to use less debt capital than those that don't generate high earnings.

Agency Cost Theory

Another theory to be considered is the Agency cost Theory propounded by Hunsaker(1999) which hinges firm's capital structure on agency costs. The costs related to equity issue may include; the monitoring expenses of the principal (the equity holders) the bonding expenses of the agent (the manager), reduced welfare for principal due to the divergence of agent's decisions from those, which maximize the welfare of the principal.

Market Timing Theory

Recently, Baker and Wurgler (2002) have recommended a new theory of capital structure, "Market timing theory of Capital structure" which suggests that managers can increase current shareholders wealth by timing the issue of securities. Therefore, firms time their equity issues by selling new stocks when the stock price is perceived to be overvalued.

From the above discussion, one can see that the basic drive of all theories of capital structure is to recognize whether the capital structure has any impact on firms' performance or not.

Firms Performance Measures

Bititei, Carrie and McDevitt (1997) described Performance management as a process wherein the organization manages its performance to match its corporate and financial strategies and objectives. The firm's value can be described as the benefits stemming from the firm's shares by the shareholders (Rouf, 2011). The company's performance can be viewed from the financial statement reported by the company. Consequently, a good performing company will reinforce management for quality disclosure (Herly & Sisnuhadi, 2011). Performance management is critical for effective management of any firm (Demirbag, Tatiglu, Tekinus and zaim, 2006).

According to Hagel, Brown and Davison (2010), most wall street analyst and investors tend to focus on Return on equity (ROE) as their primary measure of company performance, even though more sophisticated valuation techniques like internal rate of return (IRR), cash flow return on investments (CFRI), Discounted cash flow analysis (DCF) have come along. They also stated the return on assets (ROA) a better metric of

Financial performance, than income statement profitability measures like return on sales (ROS). No single metric is perfect and different metrics are appropriate depending upon the circumstances. Almatari, E.M, Al-Swidi, A.K. and Fadzil.F (2014), categorized measurements of performance into two: Accounting based measurement and marketing based measurement.

Accounting Based Measurement.

According to Almatari et al, accounting based measurement is generally considered as an effective indicator of the company's profitability and the business when compared to bench mark rate of return equal to the risk adjusted weighted average cost of capital.

The accounting based measurement indicators to the profitability of firms on the short term in the past years are: Return on assets (ROA), Return on Equity (ROE). Return on Sales (ROS),

Return on Investment (ROI), Profit Margin (PM), Operating cash flow(OCF), Earnings per share (EPS), Operation Profit (OP), Growth in Sales (GRO), Return on Capital Employed (ROCE), Expense to Assets (ETA), Sales to assets STS) and others.

For the purpose of this study, we will define a few of these measures.

- Return on Assets (ROA) is measured by net income over total assets at the end of the year.
- Return on Equity (ROE) is measured by profit after tax over total equity shares in issue.
- Return on sales (ROS) is determined by dividing net profit by sales.
- Return on investment (ROI) measured by the benefit. Return of an investment is divided by the cost of the investment.
- Earnings per share (EPS). This is evaluated by dividing the net income by total shares.
- Return on Capital Employed (ROCE) is analyzed by dividing the profit before tax over the total issued capital.

Market-Based Measurements

The second type of measurement is the market based measurement which is categorized as long term like Tobin's Q, Market value added (MVA), Market –to-book value (MTBV), Abnormal returns, Annual stock Returns (RET), Dividend Yield (DY), Price-Earnings Return (PE), Log of Capitalization, Stock Repurchases and others. The measurements are briefly explained:

- Tobin's Q can be calculated by the ratio of the market Capitalization plus total debt divided by total assets of the company
- Market Value Added (MVA) can be Calculated by getting the difference between the market value and book value of Equity
- Abnormal Returns (RET) is calculated by annual abnormal returns from the market model
- Dividend Yield (DY) is evaluated by the dividend per share over price per share.
- Price Earnings Ratio: is measured as the ratio of price per share to earnings per share.

The Tobin's Q is widely used to measure the ratio of the market capitalization plus total debt divided by total asset of the company. The above are measurements for firm performance are widely used.

Empirical Review

A panel data study of Abor (2005), evaluated the relationship between capital structure and profitability of listed firms on the Ghanaian stock exchange during a five year period (1998-2002) and found that there exists a significantly positive relationship between SDA which measures the ratio of short term debt to total capital and return on equity ROE suggesting that profitable firms use more short term debt to finance their operations. The results also showed a negative relationship between the ratios of long term debt to total assets (LDA) and return on equity ROE and a positive relationship between total debt DA and profitability ROE, suggesting that firms depend more on debt financing.

Hassan M. B, Ahsan M, Rahama.A & Alam. N (2014), in their study on the influence of capital structure on firms' performance: Evidence from Bangladesh, on 36 Bangladeshi firms listed on Dhaka Stock Exchange during the period 2007-2012, used four performance measures; Earnings per share (EPS), Return on Equity (ROE), Return on Asset (ROA), and Tobin's Q; as dependent variables and three capital structure ratios; short-term debt, long-term debt and total debt ratio as independent variables. Using pooling panel regression method, and found that EPS is significantly positively related to short term debt while significantly negatively

related to long term debt. Also, a significant negative relationship between return on asset ROA and Capital structure was found. The study also found no statistically significant relationship between capital structure and firm performance as measured by ROE and Tobin's Q. The study concluded that apart from the Positive relationship between (EPS) and short term debt to total assets (STDTA), Capital structure has negative impact on firms' performance, which they said was consistent with the position of pecking order theory.

In a study by Lawal Babatunde Akeem et al (2014), a panel data approach was used on ten firms during the period (2002-2012), the results revealed that all the independent variables Total debt (TA), Age of the firm (AGE), Debt-Equity (DE), and long term debt to capital ratio (LDCE) were negatively related to firm performance (ROI); however, only return on assets ROA, total debt TD, and debt-equity DE are significantly associated with firm performance and TD, and DE are negatively related to firm performance and recommended that long term debt finance be mostly used by highly tangible firms, hence policies in favor of huge tangible assets be pursued and that quoted firms in Nigeria should focus on establishing a positive significant relationship in their capital structure choice of total debt and debt equity mix.

Kahuria .C and Waweru.G (2015) whose study, Does Capital Structure matter? Effects on Profitability of firms listed at the Nairobi stock exchange, the study used a descriptive research design employing a census study of 49 firms was done between 2009 and 2013. Results showed that capital structure had a significant negative influence on the profitability of firms listed at the NSE their result corresponds with Boot et al 2002 that a firm that uses equity finance is able to make its performance better since there is direct control by equity holders being residual claimers who have to ensure that resources are allocated efficiently to be able to maximize shareholders wealth.

Another study by Umoru .D and Iyoha .A on Capital structure and firm financial performance in Nigeria: Empirical evidence of the causal link 2017, the study examined the link between capital structure and firm financial performance using a panel research design for a period spanning 2010-2014. they sampled 75 companies quoted on the Nigerian stock exchange. The data estimation technique was the 2SLS. Financial leverage was proxy by ratio of noncurrent liability to overall assets or equity (NCLEQ) and ratio of current liability to overall assets (CULEQ) while equity ownership was proxy as a ratio of equity shareholdings to total assets EQTTA. Financial performance indices used in the study were return on assets RETOA and Tobin's Q. The results revealed that NCLEQ had no causality with RETOA and vice-versa, but CULEQ exhibited causality with RETOA, Showing a simultaneous causal link between CULEQ and RETOA. The study recommended firms to have appropriate mixture of debt usage, high expansionary drive, more institutional and insider shareholdings to further drive financial performance as opposed to heterogeneous equity ownership, towing the same view with Abor 2005.

Olalade S.A, Omotosho.O and Adeniyi S.D. (2017) in their study on the effect of capital structure on the performance of Nigerian manufacturing firms, the study used multiple regression to analyze data and found that capital structure had no significant effect on return on equity but had a significant effect on return on assets, earnings per share and sales growth, and recommended that management should ensure an optimal capital structure and investors should look at the leverage level of firms before investing.

3. Research Methodology

This paper aims to find if there is an Impact of Capital structure on firm Performance evidence from selected manufacturing firms listed in Nigeria stock exchange.

Capital structure (independent variable): Capital structure of a firm is measured by different accounting based methods like short term liability to total assets, long term liability to total

assets and total debt to total assets. However, this study takes total debt to total assets and total equity to total assets as a proxy for capital structure of a company.

Debt Ratio (DR) = Total Debt/Total Assets

Equity Ratio = total shareholders' equity/total assets

Firm performance (dependent variables): A number of variables measuring firm performance are commonly accounting based measures of performance calculated from financial statements as return on equity (ROE), return on assets (ROA) and Net Profit Margin etc. while stock market return and volatility in returns are also used as performance measures of firms. Earnings per share (EPS) and Tobin's Q measurement of performance are also used by some studies to measure market base performance. This study adopts a mix based measure of performance which includes: return on assets (ROA), return on equity (ROE), and earnings per share (EPS). They are computed as follow:

Return on Equity (ROE) = Net Income/Equity

Return on Assets (ROA) = Net Income/Total Assets

Earnings per Share EPS =(Net income - Dividends on preferred stock)/average outstanding share

Data collection

Data for this study is collected from annual financial statements of firms listed in the capital market. Ratios of firms are calculated manually by the author for the period of 2014-2018 for the selected 5 companies

Results and Discussions

Table 1.Descriptive statistics

	ROA	ROE	EPS	DTR	EQR
Mean	0.105320	0.271080	89.50760	0.555720	0.443840
Median	0.080000	0.221000	10.00000	0.525000	0.474000
Maximum	0.264000	0.856000	562.0000	0.840000	0.648000
Minimum	0.022000	0.043000	0.320000	0.352000	0.160000
Std. Dev.	0.073220	0.218804	169.3525	0.158199	0.158213
Skewness	0.763926	1.390007	1.835914	0.610507	-0.607705
Kurtosis	2.332340	3.994168	4.784251	2.159799	2.156080
Jarque-Bera	2.895940	9.080045	17.36028	2.288345	2.280650
Probability	0.235047	0.010673	0.000170	0.318487	0.319715
Sum	2.633000	6.777000	2237.690	13.89300	11.09600
Sum Sq. Dev.	0.128669	1.149000	688326.1	0.600645	0.600755
Observations	25	25	25	25	25

Table 1 gives the detail of descriptive statistics of the variables used in this paper. First row of the table shows the mean of the variables as: return on assets (ROA), return on equity (ROE), earnings per share (EPS), debt Ratio (DTR) and equity ratio (EQR) respectively. The mean values are 0.105, 0.271, 89.508, 0.556 and 0.444.

Correlation analysis

Correlation is concern describing the strength of relationship between two variables. In this study the correlation co-efficient analysis is under taken to find out the relationship between

capital structure and financial firm performance. It shows the degree of relationship that exists between capital structure and firm performance.

Table 2. Correlation Test Results

	ROA	ROE	EPS	DTR	EQR
ROA	1	0.87133	0.01134	0.00892	-0.01081
ROE	0.87133	1	-0.07845	0.44001	-0.44134
EPS	0.01134	-0.07845	1	-0.07301	0.07264
DTR	0.00892	0.44001	-0.07301	1	-0.99999
EQR	-0.01081	-0.44134	0.07264	-0.99999	1

The Table 2 above shows the relationship between Performance variables (ROA, ROE, and EPS) and capital structure variables (DTR and EQR). Therefore, debt ratio (DTR) and return on assets (ROA) has a positive weak relationship of 9%, DTR and return on equity (ROE) has a positive semi strong relationship of 44% while DTR and earnings per share (EPS) has a negative relationship of 7%. Secondly, equity ratio (EQR) and ROA as well as ROE has a negative insignificant correlation of 1% and a negative significant relationship of 44% respectively while EQR and EPS has a positive weak relationship of 7%. The positive relationship infer that the variation increase in one variable will lead to that percentage change in the other variable while the negative relationship suggest that the percentage increase in the independent variable will result to the same proportion decrease in the dependent variable, vice versa.

Table 3. Panel Fixed Effect Regression Model 1

Dependent Variable: ROA

Method: Panel Least Squares

Date: 08/23/19 Time: 14:43

Sample (adjusted): 2015 2018

Periods included: 4

Cross-sections included: 5

Total panel (balanced) observations: 20

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-33.63660	42.94546	-0.783240	0.4487
DTR	33.66768	42.96440	0.783618	0.4485
EQR	33.85378	42.96022	0.788026	0.4460
ECM(-1)	-0.100960	0.350107	-0.288369	0.7780

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.705810	Mean dependent var	0.100700
Adjusted R-squared	0.534199	S.D. dependent var	0.076130
S.E. of regression	0.051959	Akaike info criterion	-2.787567
Sum squared resid	0.032396	Schwarz criterion	-2.389274
Log likelihood	35.87567	Hannan-Quinn criter.	-2.709816
F-statistic	4.112850	Durbin-Watson stat	2.334728
Prob(F-statistic)	0.015701		

The summarized model in table 3 shows that 71% of the systematic variation in return on assets is explained by the two independent variables of debt ratio and equity ratio. The adjusted R^2 value of 53% gives us the degree of freedom after adjusting for error. The F value of 4.113 is significant at 5% level. This reveals that there is a significant relationship between debt ratio, equity ratio and return on assets. The Durbin-Watson value of 2.335 indicates that there is no problem of autocorrelation.

Table 4. Panel Fixed Effect Regression Model 2

Dependent Variable: ROE

Method: Panel Least Squares

Date: 08/23/19 Time: 14:58

Sample (adjusted): 2015 2018

Periods included: 4

Cross-sections included: 5

Total panel (balanced) observations: 20

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-135.8360	115.4063	-1.177024	0.2620
DTR	136.0953	115.4439	1.178887	0.2613
EQR	136.2205	115.4640	1.179766	0.2610
ECM(-1)	0.469372	0.799424	0.587138	0.5680

Effects Specification			
Cross-section fixed (dummy variables)			
R-squared	0.775339	Mean dependent var	0.260050
Adjusted R-squared	0.644287	S.D. dependent var	0.229393
S.E. of regression	0.136814	Akaike info criterion	-0.851212
Sum squared resid	0.224617	Schwarz criterion	-0.452919
Log likelihood	16.51212	Hannan-Quinn criter.	-0.773461
F-statistic	5.916254	Durbin-Watson stat	2.489400
Prob(F-statistic)	0.003764		

The summarized model in table 4 shows that 78% of the systematic variation in return on equity is explained by the two independent variables of debt ratio and equity ratio. The adjusted R^2 value of 64% shows the degree of freedom after adjusting for error. The F value of 5.916 is significant at 5% level. This reveals that there is a significant relationship between debt ratio, equity ratio and return on equity. The Durbin-Watson value of 2.489 indicates that there is no problem of autocorrelation in the second model as well.

Table 5. Panel Fixed Effect Regression Model 3

Dependent Variable: EPS

Method: Panel Least Squares

Date: 08/23/19 Time: 15:00

Sample (adjusted): 2015 2018

Periods included: 4

Cross-sections included: 5

Total panel (balanced) observations: 20

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	71848.30	49943.66	1.438587	0.1758
DTR	-71803.36	49959.93	-1.437219	0.1762
EQR	-71785.29	49968.61	-1.436608	0.1764
ECM(-1)	-89.30444	345.9615	-0.258134	0.8007

Effects Specification

Cross-section fixed (dummy variables)			
R-squared	0.903956	Mean dependent var	81.82100
Adjusted R-squared	0.847931	S.D. dependent var	151.8312
S.E. of regression	59.20819	Akaike info criterion	11.28917
Sum squared resid	42067.32	Schwarz criterion	11.68746
Log likelihood	-104.8917	Hannan-Quinn criter.	11.36692
F-statistic	16.13472	Durbin-Watson stat	1.965312
Prob(F-statistic)	0.000032		

Thirdly, the model in table 5 shows that 90% of the systematic variation in earnings per share is explained by the two independent variables of debt ratio and equity ratio. The adjusted R² value of 85% reveals the degree of freedom after adjusting for error. The F value of 16.135 is significant at 5% level. This reveals that there is a significant relationship between debt ratio, equity ratio and earnings per share. The Durbin-Watson value of 1.965 reveals that there is also no problem of autocorrelation in the third model.

Summary, Conclusion and Recommendations

This study examined the impact of capital structure on firm performance of some selected manufacturing companies in Nigeria. Five manufacturing companies listed on the Nigerian stock exchange ranging from 2014-2018 were used for this study to determine the relationship between Performance variables (ROA, ROE, and EPS) and capital structure variables (DTR and EQR). Debt ratio (DTR) showed a positive weak relationship with return on assets (ROA), DTR had a positive semi strong relationship with return on equity (ROE) while DTR had a negative relationship on earnings per share (EPS). Secondly, equity ratio (EQR) and ROA as well as ROE had a negative insignificant correlation and a negative significant relationship respectively while EQR and EPS had a positive weak relationship. The positive relationship infer that the variation increase in one variable will lead to that percentage change in the other variable while the negative relationship suggest that the percentage increase in the independent variable will result to the same proportion decrease in the dependent variable, vice versa.

The results reveal that there is a significant relationship between debt ratio, equity ratio and return on assets, return on equity, as well as earnings per share.

Conclusively, the study shows that capital structure has a positively significant relationship on ROA, ROE, and EPS, but EPS is a better measure of firm performance than ROA and ROE. This is in line with the works of Abor, J. 2005; Lawal, Babatunde Akeem et al (2014); Hassan, M. B, Ahsan, M, Rahama .A and Alam. N (2014). Manufacturing companies should therefore use more of equity financing than debt as a source of finance to boost firm performance. Management should avoid using debt but rather use retained earnings to finance their activities. This is in line with perking order theory that firms should optimize their capital structure with the appropriate debt -equity mix. This study will contribute to finance literature of emerging and developing economies.

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