The Nexus between Financing Mix and Performance of Selected Listed Manufacturing Firms in Nigeria

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Abstract: The paper examined the nexus between financing mix and performance of listed manufacturing firms in Nigeria. Secondary data sourced from the published annual financial statements of the selected firms were utilized. The study covered the period between 2006 and 2021. A theoretical framework was brought in to examinedthe issue of financing mix with a view to establish the theoretical underpinning of this research. The multiple regression method of data analysis was utilized. The expost factor research design method was adopted. Five proxies were adopted to represent the two regressand and three regressors. It was discovered that equity financing had low impact on ROE and high impacts on ROE. Meanwhile,debt financing had high significant effect on both financial performance surrogates-ROE and ROA. However, Debt/equity financing has minimal adverse impacts on the Nigerian manufacturing sector. Hence, the study concludes that, the inability of the Nigerian manufacturing subsector to opt for proper financing mix is likely one of the causes of under-performance of these firms in Nigeria. In view of this, finance managers in the Nigerian manufacturing subsector are advised to trade with caution why making their financing mix decision if they must remain profitable. Lastly, finance managers are advised to use less of debt to finance its operations and even if they must opt for more debts, they must ensure that the cost of debt is within a bearable limit.

Keyword: Financing Mix, Performance, Listed Manufacturing Firms

Introduction

The failure or success of any humanendeavourin present time is not accidental. It is indeeda function of the firm's collective investments decisions. In this digital age, investment opportunities and financing options have increased resulting to a significant growth in the dependence by firms on the capital market. If a firm is to grow, the needed funds can now come from various sources. Each of these source has its own inherent advantages and pitfalls. The choice of a particular source will therefore depend in a number of factors like cost of capital, conditions attached, the current level of indebtedness of the firm etc. Again, the firm will have tomake a choice as to whether to explore the debt or the equity option. Therefore the relative proportion of these two major sources of financing available to a firm is referred to as capital structure or financing mix.

According to Erhirhie (2009), a firm should aim at a capital structure which takes advantage of two inter-related factors. First, maximum control which is achieved througha balanced between voting and loan capital. Fromthe statement of financial position perspective the aggregate borrowed fund should not exceed a reasonable proportion of the fixed assets. With regards to the income statement, earnings must be sufficient to cover all types of fixed charges. Secondly, there is the important matter of a gearing or leverage represented by the financing mix which carries the burden of fixed interest and dividend claims on income. Since all these may have important effect on investors' attitude and determines a firm's overall cost of capital and value, it is widely agreed that firms should attempt to apply, the least cost combination of financing mix so as to continuously increase the wealth of the shareholders.

There are many studies in this aspect of research, but so far in Nigeria none has been able to use current data and appropriate statistical instruments to explore the manufacturing sector of the economy. Our interest in the manufacturing sector is born out of the fact that, this sector ideally is the economic growth driver.

Objectives of the Study

The major objective of this study is to:
1. Examine the impact of debt financing on the performance of listed firms in the manufacturing sub-sector of the Nigerian economy. Other objectives include to:
2. Investigate the influence of equity financing on the performance of listed firms in the manufacturing sub sector of the Nigerian economy.
3. Findout the impact of debt/equity financing on the performance of listed firms in the manufacturing subsector of the Nigerian economy.

In this study performance is proxy by Return on Asset and Return on Equity.

Accordingly, the following hypotheses were tested in this study:

Ho_1: Debt financing surrogated by debt ratio has no significant impacts on the manufacturing sector's performance.

Ho_2: Equity financing proxy by equity ratio has no significant impacts on the manufacturing sector's performance.

Ho_3: Debt /equity financing, proxy by debt/equity ratio has no significant impacts on the manufacturing sector's performance.

Literature Review
Theoretical Literature:

The Pecking order theory (POT), net income approach (NIA), and the net operating income approach (NOIA) were used to underpin this paper. The former theory was developed by Myers in 1984. This theory states that, the major reason why companies resort to external funding is due to the fact that the internal sources are not enough to meet their funding needs. Put differently, businesses will only opt external/debt fundingonly if their internal sources are not enough to meet their funding needs. Hence, firms' funding (internal/equityand external/debt) mix decision is basedless efforts and least resistance.

According to the **NIA**, both the cost of debt and equity are independent of the capital mix such that, as the weighted cost of capital reduces, firm value and financing mix will increase in like manner. Meanwhile, the NOIA was conceived by Modigliani and Miller in 1958. This theory states that, the manner at which a company isfinanceddoes not improve its market value. As such, refuted the claim of the NIA. Below are its basic assumptions:

i)   Cost of debt remains constant regardless of the gearing level.
ii)   Weighted average cost of capital remainsconstant regardless of rise in gearing level.
iii)   The cost of equity will rise in such a way as to keep the weighted average cost of capital constant.
   -   Perfect market exist where individuals and companies can borrow unlimited amount at the same rate of interest.
   -   No corporate taxes or transaction cost
   -   Personal borrowing is a perfect substitute for corporate borrowings.
   -   Firms exist with the same business or systematic risk but different levels of gearing.

Beautiful as this theory may seem, it is faced with a lot of criticisms, which the critics argued are not feasible in practical world of today. Some of such arguments are as follows:

a)   That the markets for securities are not perfect, also transaction cost exist and all these hinder the effective working of arbitrage transactions.
b)   That in practice, companies can usually borrows more easily at lower cost than individuals.
c)   A tax free world does not really exist. Therefore the effect of taxation reduces the cost of debt finance which will ultimately lead to a steady decline in cost of capital.
d)   Investors are assumed to act rationally which may not be the case in practice.
e)   In practical realities, some earnings may be retained and so the assumption of paying out al earnings as dividend would not apply.

Empirical Literature:

The study of Abor (2007), using correlation analysis, found that both capital structure (long and short term debts) and firm performance surrogated by Return on Asset (ROA)are highly non-linear in both Ghana and South Africa.

The study of sixty Chinese real estate listed firms as raised by Wang et al (2010) revealed that low growth opportunities and high growth opportunities firms have a positive relation with operating performance. Similarly, San and Heng (2011) revealed that ROA and ROE has orthogonal effects on large, medium and small construction firms in China. Deesomsak et al (2004) using regression analysis discovered that a negative relationship exist between capital structure and performance in Malaysian listed firms. This same study revealed that for Singapore, Tiwan and Australia, leverage exerted minimal adverse effects on firms' performance.

Again, Min Tsund Cheng (2009) discovered that with exception of high cash flow firms, debt financing have significant negative consequence for performances. Hence, it was harmful for firms to rely solely on either debt or equity financing but rather on a mix of the two sources of funds. Aburub (2012) did a study on the impact of capital structure on performance of firms listed on the Palestine stock exchange. The study used regression analysis and the result revealed that capital structure has a positive impact on performance surrogated by return on equity, earnings per share, market to book value of equity ratio and Tobin Q ratio.

Using the multivariate approach, Muritala (2012) found that, debt and equity fundinghave high adverse effects on firms' performance. In Sri lanka, Leon (2013), discovered that there exit a significant relationship between performance and leverage. Eriki and Omorokunwa (2014) studied the capital structure on banks performance linkages in Nigeria, using the period 2003 to 2012. They discovered that a bank capital structure has a high positive impacts on its return on capital employed and its ROA. Again, El-Macide and Ahmed (2016) did a study on the impact of capital structure on financial performance of firms in Nigeria cement industry using four listed companies and adopted regression analysis method, both long and short term liabilities impacted on both ROA and ROE both positively and significantly. They therefore drew a conclusion that performance in this industry may not be optimized due to their inability to make use of debts instruments in their capital structure.

Methodology

This study used expost-facto research design method since the data used had already been in existence and have affected the industry which the researchers are studying. With this design, the researchers do not have direct control over the independent variables since they have already occurred. This study is randomly picked 10 restricted to the period 2006 – 2021 as the time frame (sixteen years). This is because previous studies on cement industries within the manufacturing subsector had already been conducted. None has been able to integrate all the industries within the manufacturing subsector for a composite research in Nigeria. This study therefore is unique in this regard.

Method of Data Collection:
The time series data were collected from the published financial statements of ten manufacturing companies. Their selection was based on the industry they represent, their spread and listing in NSE.

Method of Data Analysis:
The ordinary least square regression method was used to estimate the time series data collected.

Model Specification:
Our model can be stated functionally as follows:
Performance ROE/ROA = f(Df, Ef, Def) ……………….. eq (1)]
where:

Return on Equity (ROE) = $\dfrac{\text{Profit after Tax}}{\text{Shareholders fund}}$

Return on Asset (ROA) = $\dfrac{\text{Net Profit}}{\text{Total Assets}}$

Debt financing proxy by debt ratio (DF)
= $\dfrac{\text{Total Debt}}{\text{Total Assets}}$

Equity financing proxy equity ratio (EF)
= $\dfrac{\text{Total equity}}{\text{Total Assets}}$

Debt Equity financing proxy by Debt/Equity ratio (DEF)
= $\dfrac{\text{Total Debt}}{\text{Total Equity}}$

We therefore state the econometric form of the Model as follows:
Model 1: ROE $= \beta_0 + \beta_1 Df + \beta_2 EF + \beta_3 DEF + ut$ ……………… eq (2)
Model 2: ROA $= \beta_0 + \beta_1 DF + \beta_2 EF + \beta_3 DEf + ut$ ……………… eq (3)
Where: β_0 = intercept
$\beta_1 - \beta_5$ = parameters to be estimated
Ut = Error term.

Presentation and Analysis of Results:
The sourced data were analyzed in table 1 and 2 below:

Table 1: Descriptive Statistics for Model 1- ROA and Financing Mix Proxies

	ROE	EF	DF	DEF
Mean	752834.0	520.8750	420.4375	423.9375
Median	761230.5	489.0000	417.0000	423.0000
Maximum	835123.0	832.0000	562.0000	532.0000
Lowest	643212.0	367.0000	332.0000	314.0000
Std. Dev.	67126.61	135.4464	70.30976	43.23497
Skewness	-0.243949	1.034756	0.549545	-0.020651
Kurtosis	1.446087	3.060914	2.277480	5.846985
Jarque-Bera	1.768461	2.857727	1.153356	5.404685
Probability	0.413032	0.239581	0.561761	0.067048
Sum	12045344	8334.000	6727.000	6783.000
Sum Sq. Dev.	6.76E+10	275185.8	74151.94	28038.94
Observations	160	160	160	160

Table 2: Descriptive Statistics for Model 2- ROA and Financing Mix Proxies

	ROA	EF	DF	DEF
Mean	915261.3	520.2500	420.4375	424.2500
Median	908341.5	485.5000	417.0000	423.5000
Maximum	996780.0	832.0000	562.0000	532.0000
Minimum	732941.0	367.0000	332.0000	314.0000
Std. Dev.	71742.20	135.3999	70.30976	43.24581

Skewness	-0.844518	1.050047	0.549545	-0.042968
Kurtosis	3.556068	3.084996	2.277480	5.842078
Jarque-Bera	2.108035	2.945081	1.153356	5.389862
Probability	0.348535	0.229342	0.561761	0.067547
Sum	14644180	8324.000	6727.000	6788.000
Sum Sq. Dev.	7.72E+10	274997.0	74151.94	28053.00
Observations	160	160	160	160

In table 1-Model 1, the highest ROE is 835123, the lowest was 643212 while the mean was 75834.2. The observed difference was not too high meaning that the performances of the selected firms for the study were close to each other. It further shows that the selected firms performed very well since their ROE was close to the mean value. The highest equity financingvalue was 832.0000 the lowest was 367.0000 while the mean was 520.8750. The difference was high implying that many of the selected firm was averse to the use of equity financing within the period of the study. The highest value of debt financing was more fascinating as the observed variation between their maximum values, lowest and mean values, lowest and mean values were more tolerable. This signals that the selected firms made more use of debts within the period. The Skeweness which measures that asymmetry of the series has values ROE and DF Skewed to the left while EF and DF Skewed to the right with negative and positive values respectively. The Jarque-Bera which test the normality of the series indicate probability values that are greater than 5% in most cases meaning that the errors are normally distributed.

In Table 2-Model 2; the highest ROA is 996780; the lowest is 732941 while the Average in the industry is 915261.3. The observed difference and standard deviation is not on the high side. This corroborates earlier findings using ROE. The highest value for Equity financingis532.2500 while the lowest value and standard deviation were 520.2 and 367.000 respectively. This is in agreement the reported result for ROA. The figures for Debt ratio and debt/equity ratios are also in agreement with the result reported for ROA. While ROA and DEF are negatively Skewed EF and DF are positively Skew to the right. The Jarque Bera also reported a probability greater than 5% in most cases imply that the errors are normally distributed and hence the representative of the conclusion of the entire population.

Results and Discussion:
The panel least square results for model 1 and 2 are discussed below:
Table3: Result of Regression-Model 1
Dependent Variable: ROE
Method: Panel Least Squares
Date: 06/23/22   Time: 02:23
Sample: 2006 2021
Periods included: 16
Cross-sections included: 10
Total panel (balanced) observations: 160

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EF	0.087095	0.136211	0.639412	0.5346
DF	-0.689314	0.161613	-4.265216	0.0011
DEF	-0.064025	0.032975	-1.941607	0.0760
C	12.755610	1.240629	10.281570	0.0000

R-squared	0.691964	Mean dependent var	752834.0
Adjusted R-squared	0.614955	S.D. dependent var	67126.61
S.E. of regression	41653.41	Akaike info criterion	24.32447
Sum squared resid	2.08E+10	Schwarz criterion	24.51762
Log likelihood	-190.5958	Hannan-Quinn criter.	24.33436
F-statistic	8.985492	Durbin-Watson stat	2.260781
Prob(F-statistic)	0.002149		

Source: E-views 10 Output
Table 4: Result of Regression-Model 2
Dependent Variable: ROA
Method: Panel Least Squares
Date: 06/23/22   Time: 02:23
Sample: 2006 2021
Periods included: 16
Cross-sections included: 10
Total panel (balanced) observations: 160

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EF	0.627706	0.270994	2.316314	0.0390
DF	-0.514358	0.168774	-3.047609	0.0101
DEF	-0.044493	0.029785	-1.493793	0.1611
C	14.122890	1.134493	12.448640	0.0000
R-squared	0.773577	Mean dependent var		915261.3
Adjusted R-squared	0.716971	S.D. dependent var		71742.20
S.E. of regression	38167.19	Akaike info criterion		24.14966
Sum squared resid	1.75E+10	Schwarz criterion		24.34280
Log likelihood	-189.1973	Hannan-Quinn criter.		24.15955
F-statistic	13.66604	Durbin-Watson stat		1.539761
Prob(F-statistic)	0.000355			

Source: E-views 10 output
From model, the calculated $R^2 = 0.69$ i.e. 69%, signalingthat, the total variation inROE is explained by the regressor i.e. debt financing equity financing and debt/equity financing. The remaining 31% are caused by factors outside themodel but captured by the error term. Again, the computed F-ratio of 8.985 is greater than the table value of 6.51, we therefore reject the null hypothesis that the entire model is not statistically significant. Also the computed Durbin Watson of 2.2 can be approximated to 2. Hence,the paperstates that,model did notauto-correlate.

With respect to the other regressand as captured in model i.e. ROA, the calculated R^2 is 0.77 or 77%. This also implies that about 77% of the total variation in ROA is explained by the regressors i.e. debt financing equity financing as well as debt/equity financing. The remaining 23% are caused by factors outside the model but captured by the error. The computed F-ratio of 13.66 is greater than the table value of 6.51, implying a rejection of the null hypothesis that the entire model is statistically in significant and therefore we accept the alternative that the entire model is statistically significant. Again, the computed Durbin Watson of 1.539 can be approximated to 2 signaling noof autocorrelation.

From model 1 above, equity financing has a coefficient value of 0.087095 but in the case of model 2, it had a coefficient value of 0.627706. This signals that equity financing was able to improve ROE by 8.71% but was able to increase ROA by 62.77%. In terms of statistical significance, equity financing had high significant effect on ROA only. This is in line Aburub (2012) Eriki and Omorukuwa (2014); Muritala (2012), Mesquita and Lara (2000).On the overall, equity financing had mixed yet direct effects on firm performance.

In the case of debt financing, debt financing has a negative coefficient value of -0.689314 but in the case of model 2, it had a coefficient value of -0.514358. This signals that debt financing was able to reduce ROE and ROA by 68.93% and 51.44%. In terms of statistical significance, debt financing had high significant effect on both financial performance surrogates-ROE and ROA. On the overall, debt financing had high adverse effects on firm performance. This is at variance with the Net income hypothesis which holds that as the level of gearing increases the dividend per share i.e. ROE also increases. The result is in line with that of Abor (2007). The result is true in the study carried out by: Wang et al (2010), Heng (2011), Min Tsug Cheng (2009).

The performance of the last explanation variable i.e. debt/equity financing was similar, with a t-value of -1.941607 and a table value of 1.74, it is clear that the debt/equity financing has a minimal adverse impacts onperformance surrogated by ROE. This is in line with the work of Min Tsung Cheng (2009) who discovered that with exception of high cash flow firms' debt or equity financing has negative consequences for performance.

In the case of ROA, Debt/equity financing with a negative t-value of -1.49 lesser than the table value of 1.74 signals that Debt/equity financing has minimal adverse impacts onthe Nigerian manufacturing sector. This explains why their impact may not have been felt by way of job provision or harnessing abundant natural resources available to drive economic growth in Nigeria.

Conclusion and Recommendations
The study above affirmed that, equity financing had direct yet mixed significant effects on firm performance such that, equity financing had low impact on ROE and high impacts on ROE. Meanwhile,debt financing had high significant effect on both financial performance surrogates-ROE and ROA. However, Debt/equity financing has minimal adverse impacts on the Nigerian manufacturing sector. Hence, the study concludes that, the inability of the Nigerian manufacturing subsector to opt for proper financing mix is likely one of the causes of under-performance of these firms in Nigeria. In view of this, finance managers in the Nigerian manufacturing subsector in Nigeria are advised to trade with caution why making their financing mix decision if they must remain profitable. Lastly, finance managers are advised to use less of debt to finance its operations and even if they must opt for more debts, they must ensure that the cost of debt is within a bearable limit.

Suggestion for further studies
The study have identified that, there are much work to be done on the subject matter in the Nigerian context since most existing studies are within the confine of the banking and Health sectors. Hence, recommend further studies to be done in the agro-allied sub-sector. This will ensure that the real sector is well captured.

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