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Capital Structure and Performance of Nigerian Manufacturing Companies

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Abstract
Key performance indicators reveal considerable decrease in employment, productivity, and output in the Nigerian manufacturing sector in recent times. This poor performance is worrying, given the sector's role in employment generation, poverty reduction, and growth stimulation. While several studies have attempted to shed light on the underlying causes of the sector's performance, most have focused on macroeconomic variables while ignoring potential firm- and subsector-specific causes. For instance, debt and equity constraints that characterize underdeveloped capital markets in countries like Nigeria seem to be key aspects that have been ignored so far. This study therefore explores the effect of capital structure on the performance of Nigeria's manufacturing sector using a robust panel of listed manufacturing companies. The analyses involve a nonlinear approach and attempt to disaggregate the effect of capital structure across subsectors. In support of the trade-off theory, the results reveal overwhelming evidence of a nonlinear capital structure effect sector-wide and in most of the subsectors, excluding agriculture, brewery, and healthcare. Specifically, capital structure appears to be a significant determinant of performance in large manufacturing companies only. The findings show that policy measures to reverse the poor performance of the Nigerian manufacturing sector should target manufacturing companies prone to excessive leverage. It is further advised that Nigerian manufacturing companies rely more on internally generated revenues and equity capital to fund long term projects.

Keywords:*Capital structure; Manufacturing; Panel data; Productivity; Trade-off theory*
JEL Codes: *C23; L6; M21; N67; O14*

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I. Introduction

There have been serious concerns about the condition of Nigeria's manufacturing sector since the 1960s dueto its potential to generate economic growth and development. A budding manufacturing sectorshould reduce unemployment and poverty through employment and wealth creation. Despite this potential, the manufacturing sector in Nigeria has performed weaklyso far. This has negatively impacted the Nigerian economy over the years as the economy has in consequence,dependedstrongly on imported manufactured products due to their low domestic supply. Given Nigeria's high population of about 140 million according to the 2006 national census, the country'sexcessive reliance on manufactured imports to feed her population has constituted a serious strain on itsdwindling foreign exchange reserves. Moreover, the heavy reliance on manufactured imports tends to instigate imported inflation.In addition, the poor condition of manufacturing businesses is equally reflected in the massive closure of several manufacturing companies in the country.One report from theManufacturers Association of Nigeria (MAN, 2014)confirms that manufacturing ventures in the countryhave been rapidly closing down or relocating to neighbouring countries.Consequently, job opportunities have been dwindling while unemployment figures keep rising.

The low output of Nigeria's manufacturing has no doubt, contributed to slow development in the agricultural sector since manufacturing production does not optimally utilize inputs from the agricultural sector.As a result, farmers have not optimized potential income from industrial demand of farm produce. Since a substantial proportion of Nigeria's employment is attributed to agriculture activities, poor manufacturing performance invariably contracts employment opportunities in the economy, leading to a greater incidence of poverty. This is as a result of the agricultural sector's limited capacity to transform farm produce to finished or intermediate state. The poor agricultural-manufacturing linkage has also made it difficult for Nigeria to take advantage of the concessional arrangements on agro-business exports provided by the New Partnership for African Development (NEPAD), the U.S. African Growth and Opportunity Act (AGOA),the European Union's African, Caribbean, and Pacific (EU-ACP) states agreement and,the World Trade Organization (WTO) not to mention the vast West African market for the export of manufactured agricultural produce.

In light of the potential adverse influence of an ailing manufacturing sector on economic prosperity, revitalizing manufacturing businesses has become a major concern of research interests and public policy. As such, policy discourse has tended to focus on facilitating easy access to credit, electricity supply, provision of good roads, rail and bridges for the movement of raw materials and finished products, ensuring property rights and general peace and security. Though these issues mentioned are quite germane, they are external factors beyond the control of the manufacturing companies. To have a more holistic view of the problem, the study draws attention to the internal issue of capital structure as a possible contributory factor to weak manufacturing performance in Nigeria.

Theoretical Framework

The theory of capital structure explains what factors influence the capital structure of a firm, how the firm funds its investments with existing capital, and how these investment decisions affect the firm performance. These issues have been rather difficult to address over the year, with the traditional theory positing a significant connection between capital structure and firm value. It states that at the initial stage of introducing debt finance, investors ignore the effect of indebtedness in the form of rising earnings volatility. The net effect of a varying equity cost and fixed debt cost is that the weighted average cost or pure equity rate of capital falls as the firm avails itself of the gains from cheap debt without incurring the penalty of higher investment returns which equity investors demand. However, there comes a point where the financial risk exposure is noticed by equity investors who then demand higher rate of return or dividend as compensation. This creates a scenario where the firm is forced to adopt a dividend policy that triggers higher weighted average capital cost as it attempts to appease equity investors.

Modigliani & Miller (1958) refuted the traditional view in their capital structure-irrelevance theory arguing that a firm's market value does not depend on its capital structure. The basic propositions of the Modigliani–Miller theory are that: 1) a company's value and total capital costs remains invariant regardless of its degree of leverage. Estimating the company's value requires capitalising expected streams of operating earnings and discounting them at a suitable rate; 2) the capital cost is equal to a pure equity stream's rate of capitalization and the financial risk premium. This is equivalent to the difference between the leverage ratio and the capitalization rate on pure equity; 3) the least cut-off rate for investing in capital projects is completely independent of how the project is financed.

Two main types of propositions are associated with capital irrelevance theory. The first, known as the classic proposition is based on arbitrage and provides a framework through which the company's value is kept independent of leverage by arbitrage.The second is the multiple equilibria proposition which believes that equilibrium conditions determine the total equity and debt in the market. The arbitrage-based irrelevance proposition asserts that the values of similar firms that only differ in leverage will be the samebecause of arbitrage operation.

In contrast to the proposition of capital irrelevance, trade-off theory asserts that there is an optimal capital structure at which the cost of finance to the firm is minimized and its value maximized. It explains that firm value increases as leverage increases from a lower level up to an optimum level. However, as leverage increases further beyond the optimum, firm value decreases. In response to this scenario, companies target their capital structures in the sense that, where there is a deviation between the actual and optimal leverage ratios, the company adapts its financing behaviour so that its leverage ratio can revertto the optimal level. This is achieved by managers trading off the tax savings on debt against the costs of issuing more debt capital up to an optimum leverage level at which the firm minimizes itscapital cost and maximizes its value.

An important implication of trade-off theory is that there is an optimum threshold or target leverage ratio any deviation (increase or decrease) from which has anundesirableinfluence on firm performance. This implies a hump-back shaped non-monotonic association between capital structure and firm performance. Since at optimal capital structure, the benefits of debts are balanced with the costs of debt, Coricelli et al. (2012) explain that trade-off theory is more superior to other capital structure theories in detecting the connection between firm performance and capital structure. They equally point to a comprehensive review of the literature by Frank et al. (2009) which concludes that empirical evidence is rather consistent with trade-off theory than other versions of capital structure theories. Thus, they remark that trade-off theory is simply the most natural starting point for investigating the influence of capital structure on firm performance.

II. Review of Empirical Literature

The literature provides mixed evidence on the link between firm performance and capital structure. Some studies report a negative connection between firm performance and leverage: Khodavandloo & Zakaria (2017) for Malaysia; Ashraf et al. (2017) for Pakistan; Nassar (2016) for Turkey, Ahmad et al. (2016) for Pakistan; AlGhusin (2015) for Jordan; (Tuffour & Barnor, 2016) for Ghana; Bassey et al. (2017), Akeem et al. (2014), Chukwunweike & Osiegbu (2014), Akinlo & Asaolu (2012), and Ojo (2012)for Nigeria;Mumtaz et al.

(2013) for Pakistan, and Saeed & Badar (2013) for Pakistan. In the case of Khodavandloo & Zakaria (2017), they find that the inverseconnection between firm performance and leverage is stronger during the period of financial crisis. Other results show that the relationship is only negative at low leverage: Coricelli et al. (2012) for Central and East European countries; and Skopljak (2012) for Australia.

Conversely, some studies report the relationship as positive: Anton (2016) for Romania; Kakanda et al. (2016) for Nigeria; and Zeitun & Tian (2007) for Jordan; while the following studies report that the relationship is only positive at target leverage: Khan (2012) for Pakistan; Skopljak (2012) for Australia; and (Coricelli et al., 2012) for Central and East European countries. The literature equally throws up some mixed results. Ubesie (2016) reports mixed result for Nigeria based on the variables employed, where capital structure has an influence on both asset turnover andreturn on assets but noton return on equity and earnings. Vithessonthi & Tongurai (2015) finds for Thailand that the relationship is non-linear and conditional on firm size, as the effect of leverage on performance is negative for large firms andpositive for small firms. San & Heng (2011) report for Malaysia a mixed/differential impact, depending on firm size: the relationship is positive for big companies and negative for small companies. Oladele et al. (2017) report for Nigeria that leverage is an insignificant determinant of firm performance.

Another important issue addressed in the literature is the influence of firm characteristics on performance. In this respect, some studies report that profitability rises as leverage falls: Khodavandloo & Zakaria (2017) for Malaysia, Ashraf et al. (2017) and Ahmad et al. (2016) for Pakistan, Tuffour & Barnor (2016) for Ghana. This seems to support franchise-value hypothesis according to which companies can protect income earned by holding more equity capital. It also supports the pecking order theory which says that profitable firms typically prefer internal finance to external finance. However, there are some studies that document a positive relationship between leverage and profitability: Anton (2016) for Romanian firms, Zeitun & Tian (2007) for Jordanian firms. An earlier study by Antoniou et al. (2008) for the US and UK firms indicates that higher prior-period profitability reduces current performance; implying a decrease in the likelihood to hold debt as profitability increases. This finding appears to support agency cost theory which alludes to the fact that, in the face of current high performance, managers may pursue their personal interests at the expense of the firm and hold more debt; thereby jeopardizing the firm's future performance.

Regarding the influence of tangibility, Koralun-Bereźnicka (2013) reports a positive relationship with leverage for some selected European countries. Other studies that report positive relationship include Campello & Giambona (2013) for US firms, Muritala (2012) for Nigerian firms, and Dimitris and Maria (2007: 135) for New Zealand. In the findings byCampello & Giambona (2013), they assert thatin situations of high credit friction, leverage is mainly driven by 'asset redeployability'. These results suggest that companies with high proportion of tangible assets borrow more to fund increased performance. However, in the study of Croatian firms, Harc (2015)finds that tangible assets exhibit different correlations with long- and short-term leverage, where tangible assets demonstrate a positive impact on the long-term debt but adverseinfluence on short term debt.Salawu et al. (2012) report for Nigeria that performance rises with tangibility.

In respect of firm size, studies have reported negative relationship between size and performance: Butt (2016), Wahome et al. (2015), Koralun-Bereźnicka (2013), Khan (2012) and Shoaib (2011) for Pakistan. This supports the view that rising firm size may generate costs (diseconomies of scale, default risk and agency costs) that out-weigh benefits from expansion. Hence firm performance will decrease. It also supports the propositions of trade-off, agency cost and life cycle theories. On the other hand, the following studies report a positive relationship: John & Adebayo (2013) and Akinlo & Asaolu (2012) report a positive relationship between performance and size for Nigerian firms. Equally, Wahome et al. (2015) reports a positive relationship between firm size and leverage for Kenyan firms. As regards firm growth, Javadi et al. (2017) report a favourable relationship with leverage for OPEC oil firms. Other studies with similar results include Anton (2016) for Romania, AlGhusin (2015) for Jordan, Muritala (2012) for Nigeria. Conversely, Butt (2016) reports a negative relationship with leverage for US firms, thereby confirming the notion that as a firm grows, the need for external finance falls as proposed by pecking order theory. This translates to decreased leverage. Tuffour & Barnor (2016) also report aninverse relationship between firm growth and leverage for Ghana.

With respect to firm risk, Wahome et al. (2015) report for Kenyan firms that firm risk has no significant effect on leverage. Their finding conflicts with those of Caglayan & Rashid (2014) who report a positive relationship. Taxation appears to influence the impact of risk on leverage as reported in some of the reviewed studies which also indicate that taxation is positively related to leverage: Horvath (2013), Schepens (2016), and Heider & Ljungqvist (2015). Hatem (2015) reports an inverse U-shaped association between managerial ownership and debt, stating that a rise in debt causes managerial ownership to increase. Also, Shoaib & Yasushi (2015) reported an inverse U-shaped relationship between leverage and managerial ownership.

III. Methodology and Model Specification

The most important measures of firm performance in the reviewed studies are return on equity (roe), measured as ratio of earnings before interest and tax (*ebit*) to equity; return on total assets (*rota*), measured as ratio of earnings before interest and tax (*ebit*) to total assets; and return on capital employed (*roce*), measured as ratio of earnings before interest and tax (*ebit*) to the sum of equity and long term debt (Ahmad et al., 2016; Akben-Selcuk, 2016; John & Adebayo, 2013; Zeitun & Tian, 2007). Other measures of firm performance in the literature include Tobin's q (Dybvig & Warachka, 2015); operating profit margin (Sultan, 2014); earnings per share and price earnings ratio (Vithessonthi & Tongurai, 2015); and economic value added- *eva*(Jakub et al., 2015).

Although *roe, rota* and *roce* have been most frequently used in the reviewed studies, there is considerable debate in the empirical literature whether to rely on market data, book data or combined data of market and book values. It is held by some authors that market value may distort prospective investment decisions as it does not redefine the capital structure to reflect equity changes in terms of market value. Some authors have equally formulated arguments against using book values, pointing to certain rigidities of accounting standards (AlGhusin, 2015; Butt, 2016). Most of the arguments appear to be in favour of book data as it reflects assets in place at a point in time, and is not influenced by market variations while market data are difficult to obtain.

Book capital structure relies on accounting measures of outstanding long-term liabilities in the balance sheet and can be explained as: a) total book value of debt to total book value of equity or b) total book value of debt to total book value of capital; where total book value of capital = total book value of equity + total book value of debt (AlGhusin, 2015; Butt, 2016). Conversely, market capital structure is measured in terms of the market values debt and equity. Like book capital structure, market capital structure is of two types (Butt, 2016): i) total market value of debt to total market value of equity or ii) total market value of debt to total market value of capital; where total market value of capital = total market value of debt + total market value of equity, b) and ii) are the preferable measures as they have a range of 0 to 100 per cent; whereas a) and i) have a range from zero to infinity in the case of a firm which is entirely financed by debt. Also, book capital structure would be the most appropriate as it reflects assets in place and is not influenced by market variations.

Estimation techniques adopted in most studies include fixed effect and random effect models(Akben-Selcuk, 2016; Anton, 2016; Ouimet & Zarutskie, 2014); generalized method of moment(AlGhusin, 2015; Salawu et al., 2012); data envelopment analysis(Khan, 2012; Koralun-Bereźnicka, 2013; Vithessonthi & Tongurai, 2015; Zeitun & Tian, 2007), and vector auto regression(Butt, 2016; Campello & Giambona, 2013; Harc, 2015; Ojo, 2012; Tuffour & Barnor, 2016). Random and fixed effects estimation techniques were adopted in this study to account for unique firm characteristics among Nigerian firms. Using the standard Hausman test, fixed effect estimation technique is applicable where it is established that firm characteristics do not vary randomly overtime across firms (Madalla, 2001). Conversely,random effect estimation technique is applicable where firm characteristics are established to vary randomly overtime across firms.

Given the foregoing, and based on the hump-shaped non-monotonic proposition of trade-off theory, the link between capital structure and manufacturing performance can be represented in a Cobb-Douglas production function type model as follows:

$$mp_{it} = A.cs_{it}^{\beta_1} z_{it}^{\beta_2} + \varepsilon_{it} \quad (1)$$

Where *mp*is manufacturing performance (measured as return on total assets (*rota*); *A* is a constant term denoting managerial and organizational efficiency of manufacturing companies; *cs* is capital structure, and *z* is a vector of control variables employed to capture the effect of firm characteristics. The subscripts *i and t* are for individual companies (*i*) and time (*t*) respectively. Also, ε is the usual stochastic term which satisfies the assumptions of normal distribution, constant variance, and zero expected value. The vector of control variables zcontains the following company characteristics: profitability-*pt*, tangibility-*tg*, size-*sz*, and growth-*gt*. Taking the natural log of equation (1),

$$\ln mp_{it} = \ln A + \beta_1 \ln cs_{it} + \beta_2 \ln z_{it} + v_{it} \quad (2)$$

By assuming *lnA as* β_0, equation (2) is restated as follows to facilitate the application of ordinary least square (OLS) regression:

$$\ln mp_{it} = \beta_0 + \beta_1 \ln cs_{it} + \beta_2 \ln z_{it} + v_{it} \quad (3)$$

It is assumed that past values of manufacturing performance do not influence current values since the accounting measure of manufacturing performance (return on total assets (*rota*) used in the study does not necessarily reflect manufacturing activity and output levels from year to year. Also, since the main premise of the study is that manufacturing performance has been virtually stagnant over the study period, it is not expected that past manufacturing performance will influence current performance.

Given the stated analytical approach, a second power of the capital structure variable csis introduced to test the non-monotonic proposition of trade-off theory. A time dummy variable *T* is also introduced to capture the influence of external shocks from macroeconomic instability. Hence equation (3) can be restated as follows:

$$\ln mp_{it} = \beta_0 + \beta_1 \ln cs_{it} + \beta_1^{*} \ln cs^{2}{}_{it} + \beta_i \ln z_{it} + \mu_i T_{it} + v_{it} \quad (4)$$

The non-monotonic relationship between capital structure and performance is established if the coefficients β_1 and β_1* are statistically significant and switch their signs (Akben-Selcuk, 2016; Ojo, 2012).The a priori expected signs of the coefficients are: $\beta_0 > 0$, $\beta_1 < 0$, $\beta_1^{*} > 0$, and $\mu_i < 0$.

IV. Findings and Discussions

A first step is to carry out Hausman test to determine whether the preferred manufacturing performance model is fixed or random effects. The results of Hausman test for the manufacturing performance model are presented in table 1.

Table 1: Hausman Test of the Manufacturing Performance Model

Coefficients	Fixed Effect (b)	Random Effect (B)	Difference (b-B)	S.E.
lncs	-0.777	-0.152	-0.625	0.232
$lncs^2$	-0.197	-0.177	-0.02	0.058
lnpt	-1.660	-3.500	1.84	9.700
lntg	0.605	0.601	0.004	.006
lnsz	-0.056	-0.063	0.007	0.270
lngt	-0.012	0.012	-0.024	0.119

Hausman Test: χ^2 **(6)** = 2.12; **prob>** χ^2 = 0.908

Source: Author's Computation

The result of the Hausman test for the manufacturing performance model indicates that the unique have no systematic relationship withthe explanatory variables. This can be observed from the prob>chi2 value which is not significant, as it is greater than 0.05. Thus, the study rejects the alternative hypothesis and employ random effects in estimating the manufacturing performance model whose results are presented in table 2. The capital structure coefficients are highly significant, as the Fisher's p-values are less than 0.05. This demonstrates that there is a significant negative relationship between manufacturing performance and capital structure. However, the signs of the coefficients do not switch from negative to positive as predicted by trade-off theory.

Table 2: Estimated Random Effects Performance Model for the Manufacturing Sector

Variables	Coefficients	S.E.	p >I z I
Constant	1.0708	1.335	0.422
lncs	-0.5719	0.2355	0.015
$lncs^2$	-0.1771	0.0684	0.010
lnpt	-0.0004	0.0000	0.865
lntg	0.6007	0.0094	0.000
lnsz	-0.0633	0.1175	0.590
lngt	0.0127	0.0907	0.888
T_dummy	-0.7551	0.4406	0.087

Source: Author's Computation

The results also indicate that only tangibility is the significant control variable in the model, while profitability, size and growth are not significant control variables. The highly significant negative coefficient of the time dummy shows that external shocks occasioned by macroeconomic instability during the period negatively impacted manufacturing performance. The constant term is insignificant, implying that managerial and organisational efficiency are not relevant factors in manufacturing performance during the period.

To see if dropping the insignificant independent variables would improve the performance of the estimated model, a parsimonious analysis is undertaken by using only tangibility as the explanatory variable. As a first step, another round of Hausman test is done to establish the choice between fixed and random effects in estimating the parsimonious model. The result of the Hausman test in table 3 indicates that the unique error termshave no systematic relationship withthe explanatory variables. This can be observed from the prob>chi2 value which is not significant, as it is greater than 0.05. Thus, the study rejects the alternate hypothesis and employs random effects in estimating the parsimonious manufacturing performance model.

Table 3: Hausman Test of the Parsimonious Manufacturing Sector Performance Model

Coefficients	Fixed Effect (b)	Random Effect (B)	Difference (b-B)	S.E.
lncs	-0.2768	-0.2208	-0.5386	0.6193
$lncs^2$	0.0009	0.0008	0.0001	0.0001
lntg	0.3304	0.3033	0.02713	0.0956
Hausman Test:	χ^2 **(6)** = 1.30;**prob**> χ^2 = 0.7280			

Source: Author's Computation

Table 4 shows that there is improvement in the results of the parsimonious estimated random effects manufacturing performance model. The capital structure coefficients are significant and carry the expected signs. The time dummy is equally significant and negative as expected. Also, the constant term is significant and positive, implying that managerial and organisational efficiency are relevant factors in manufacturing performance during the period. Hence the results of the parsimonious estimated random effects manufacturing performance model in table 4 are more robust compared to the results in table 2.

Table 4: Estimated Parsimonious Random Effects Performance Model for the Manufacturing Sector

Variables	Coefficients	S.E.	p >I z I
Constant	0.7679	0.3500	0.028
lncs	-2.2082	0.0686	0.001
$\boldsymbol{lncs^2}$	0.0008	0.0002	0.000
lntg	0.3033	0.1216	0.013
T_dummy	-0.6024	0.4012	0.133

Source: Author's Computation

The veracity of the foregoing results is further ascertained by evaluating the peculiarities of the impact of capital structure and tangibility on the performance of each of the subsectors. The results are presented in table 5.

Table 5: Estimated Parsimonious Random Effects Performance Model for the Manufacturing Subsectors

Variables	*lncs*	$\boldsymbol{lncs^2}$	*lntg*
Agriculture	0.5621	0.0550	-0.0804
	(0.210)	(0.496)	(0.903)
Brewery	0.0605	-0.007	-0.8842
	(0.084)	(0.426)	(0.006)
Chemicals	-0.5362	0.3019	-0.2685
	(0.000)	(0.000)	(0.001)
Conglomerate	-0.0196	-0.0026	0.5078
	(0.857)	(0.543)	(0.000)
Food and Beverages	-0.2244	0.0012	0.0496
	(0.000)	(0.000)	(0.675)
Healthcare	-0.0365	0.0582	0.0966
	(0.650)	(0.187)	(0.020)
Building Materials	-0.4428	0.11084	-0.4010
	(0.000)	(0.000)	(0.010)
Machineries and ICT	0.4175	-0.2175	-0.2656
	(0.000)	(0.000)	(0.169)
Packaging and Print	0.8030	-0.6093	-0.3581
	(0.011)	(0.000)	(0.290)

Source: Author's Computation; P-values in Parenthesis.

The foregoing results indicate that capital structure is a significant determinant of manufacturing performance in 6 out of the 9 subsectors (over 67 percent), except for the agricultural, conglomerate and healthcare subsectors where the capital structure variable is not significant. Additionally, the leverage coefficient switches sign for 8 out of the 9 subsectors, except for the agricultural subsector where there is no switch. Hence the results confirm the non-monotonic firm performance function for over 88 percent of the manufacturing subsectors.

The results of the effect of firm size on manufacturing performance disaggregated into small and large firms are presented in table 6.

Table 6: Estimated Parsimonious Random Effects Performance Model for Small and Large Manufacturing Companies

Variables	***lncs***	***lncs²***	***lntg***
Small Companies	-0.8033	0.0070	-3.4815
	(0.147)	(0.283)	(0.355)
Large Companies	0.6275	-0.0210	-0.1212
	(0.006)	(0.076)	(0.108)

Source: Author's Computation; P-values in Parenthesis.

The results show that capital structure is a significant determinant of performance for both small and large companies but with differential impact- negative for small manufacturing companies and positive for large manufacturing companies. The non-monotonic performance function proposed by trade-off theory is also confirmed for small- and large-scale manufacturing companies as indicated in the table. Tangibility is an important control variable for large firms, but not for small firms as shown in the results.

V. Conclusions and Recommendations

The results of the findings suggest that capital structure among the important factors influencing manufacturing performance in Nigeria. It appears to do so by reducing manufacturing performance as debt profile rises to high or excessive levels. The link between capital structure and manufacturing performance is non-monotonic as proposed by trade-off theory. This implies that there is a particular mix of capital structure that optimizes manufacturing performance. It also indicates that maximum borrowing thresholds exist for the manufacturing companies during the period.

The performance of Nigerian manufacturing companies is also negatively affected by external shocks during macroeconomic instability. Equally, management and organizational efficiency exerts moderating influence on the adverseinfuences of capital structure on manufacturing performance, as the evidence suggests a positive correlation between managerial and organizational efficiency (denoted by the autonomous coefficient of the manufacturing performance function) and manufacturing performance.

Given the inverse nexus between capital structure and manufacturing performance established by the study, Nigerian manufacturing companies should rely more on internally generated revenues and equity capital to fund long term projects. Based on the finding that managerial efficiency and effectiveness moderate the negative influence of capital structure on manufacturing performance, the companies should implement capital structure policies that curtail finance and default risks associated with rising leverage levels.

Policy measures to reverse the poor performance of the Nigerian manufacturing sector should target manufacturing companies prone to excessive leverage identified in the study. These are 1) companies with rising fixed asset portfolios, 2) companies with high growth prospects, and 3) profitable companies. To this end, the Nigerian Financial Reporting Council (NFRC) should make it mandatory for the financial statements of companies to include a note on whether or not they consider their leverage thresholds excessive in the accounting year being reported.

As seen from the study, the fact that external shocks negatively impact the performance of Nigerian manufacturing companies shows that the manufacturing sector should be provided with a form of economic bailout programme to fast-track the needed performance during any period of major instability. Government could support manufacturing companies during periods of external shock through such agencies as the Bank of Industry (BoI), Central Bank of Nigeria (CBN), and Asset Management Company of Nigeria (AMCON).

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