Capital Structure and Firm Performance in Nigeria: Is Pecking Order Theory Valid?

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Abstract

This study examined the impact of capital structure on the performance of multinational firms in Nigeria. Panel data of 2008 to 2017 were sourced from the official publication of the Nigeria Stock Exchange (NSE). Data was analyzed, using descriptive statistic, ADF statistic, Levin, Lin and Chut statistics, correlation analysis and panel regression techniques. The findings revealed that capital structure is significant and negatively affects multinational firms’ performance in Nigeria thereby confirming that pecking order theory is valid in Nigerian multinational firms. Other firm specific factors of board size, firm age, firm size, and board independence considered were positively related to the performance of multinational firms in Nigeria though not significant (except for firm size). It is, therefore, recommended that managers of multinational companies should continue to prioritize such that they make use of the internally generated funds (retained earnings) first and if this source of finance has been exhausted, then resort to the use of debt capital and eventually equity source of financing. Besides, managers of multinational firms want to ensure the movement of their capital structure to a level that is optimal (where cost associated with capital is at the minimum level and value of the firm is at maximum level) and strive to sustain and maintain it as much as possible.

Keywords: Capital Structure, Firms Specific Factors, Multinational Firms

JEL Classification: E22, E44, F23

Paper Type: Research Paper

Introduction

The fact that capital is of practical importance to corporate organizations cannot be overemphasized. It serves as the foundation and basis upon which corporate firms are laid and therefore operates. Capital serves to absorb losses and cost, ensures the multiplication of fixed assets and ultimately makes possible the achievement of sustainable growth through takeovers, mergers and acquisition arrangement (Atseye, 2013). In some countries, financial aid is given to corporate firms by governments to enable them to begin and sustain their business operations, and thus be able to overcome some startup problems especially during economic downturn.

The cardinal objective of the firms includes the maximization of shareholders wealth while minimizing cost of operation at the same time. Corporate firms put this objective into consideration when searching for capital to finance their operations and investments. Therefore, financing decision remains one of the major decisions made by managers in the corporate world.
Choices with regards to financing are oftentimes determined by a host of factors which may be interrelated and interconnected with the characteristics and features of the firm coupled with their institutional environments (Fan, 2012). The major sources of funds that firms could use to finance their operations may include internal fund (retained earnings), equity and debt. Most companies utilize a mix of debt and equity which of course makes up the capital structure (Nassar, 2016).

From 1950 onward, the concept, theory and the philosophical foundation of capital structure have attracted a lot of interest among professionals, academic and other stakeholders in the corporate world thus making it a significant aspect of corporate finance. The idea has been to find a ratio that is optimal between equity and debt that will maximize shareholders wealth and minimize the cost of operations (Zeitun & Tian 2007). Classical theory of corporate finance proposed that there is a trade-off when a firm operates a certain level of capital structure. Invariably, a wrong choice would lead to a decreasing financial performance and even the going concern matter of the company. This study examines capital structure and the performance of multinational firms in the manufacturing sector in Nigeria.

**Statement of the Research Problem**

Modigliani and Miller (1958) in their novel work define capital structure as the mix between equity and debt that firms use to finance their operations. In a similar vein, Jensen and Meckling (1976) explored the agency cost theory which they referred to as the potential conflict of interest that arises between managers and shareholders on the one hand and between debtors and shareholders on the other hand. These arguments led to the growth and development of other capital structure theories such as pecking order, market timing and static trade off theory.

Overtime, many academic and researchers have conducted series of investigation in a bid to validate or refute these theories especially with regards to the manner of relationship that exists between capital structure and the performance of firms in both advanced and developing economies of the world. Notable among them are Obim, Anake and Awara (2014), Nassir (2016), Nenu, Vintila and Gherghina (2017), Schulz (2017), Mursalim and Kusuma (2018), Dai (2017), Basit and Irwan (2017) and Akingunola, Olawale and Olaniyi (2017) and the results of these investigations were mixed and divergent, thereby leaving the issue of capital structure and firms performance unresolved.

It is also noticed in the literature that studies that used capital structure firm specific factors (board independence, board size, firm size and firm age) to examine the performance of multinational firms in the manufacturing sector using pecking order framework are scarce in west Africa and even worse in the case of Nigeria thus, leaving a gap which the study intends to fill. With the recent attention given to the manufacturing sector by the Nigeria Federal Government as a way of diversifying the economy, it becomes imperative to investigate the impact of capital structure and other firm specific factors mentioned above on the performance of multinational firms in the manufacturing sector in Nigeria within the pecking order framework. Specifically, the study intends to:

1. Ascertain the impact of capital structure on the performance of multinational firms in Nigeria.
2. Examine the influence of board size on the performance of multinational firms in Nigeria.
3. Investigate the effect of board independence on the performance of multinational firms in Nigeria.
5. Evaluate the influence of firm size on the performance of multinational firms in Nigeria.

The results of this work will give a clear direction on the impact of capital structure on firm performance using pecking order framework, thereby updating existing studies in this regard. The outcome of the study will be useful to the regulatory authorities, government, investors and managers (principals). For the government, the regulatory authorities and other stakeholders, the findings and recommendations of the study will form part of the benchmark for assessing these specialized firms and perhaps rethinking the strategies adopted so far in boosting and maximizing shareholders wealth.

**Literature Review**

**Conceptual Review**

Capital Structure: Capital structure is referred to as the combination of equity and debt which the firms use to finance their operations (Modigliani & Miller, 1958). It is a subset of the financial structure of a firm which is a combination of short and long-term sources of financing. According to Myers and Majluf (1984), capital structure is the choice of equity, debt or hybrid securities which the firms use to finance and promote their operational activities. According to Harris and Raviv (1991) capital structure is part of the solution to the challenge of underinvestment and overinvestment.

Myers (2000) opined that capital structure is a mix of equity and debt securities used to finance real and nominal investment. Bredea (2018) posits that capital structure is the financing strategy of a long term nature used by corporate organizations while Nirajini and Priya (2013) defines capital structure as the process whereby corporate entities finance a mix of capital and liabilities on a long and short term basis.

Firm Performance: The firm performance can be broadly defined as the ability to control and maintain investment, operational decisions and strategies that will help in the achievement of business’ stability and objective. Specifically, the financial performance of a firm is its capacity and ability to generate sustainable profits. Return on Assets (ROA) and Return on Equity (ROE) are commonly used to measure profitability (Chipa & Wamiori, 2017).

**Theoretical Literature**

**Modigliani and Miller (M&M) Theory (1958, 1963)**

This theory is also termed ‘capital structure irrelevance’. It presupposes that the connection and hence the relationship that exists between capital structure and the overall cost of capital is not relevant. This means that increased debt financing has no effect on cost of capital. It is only the expectations of investors with regards to benefits in the future that affect the value of the firm and hence it’s cost of capital. The theory of M&M (1958) assumes that the capital market is perfect without tax, without transaction cost and debt that is risk free (Modigliani & Miller, 1958).

Modigliani and Miller empirically observed that the cost of capital impacts greatly on capital structure and invariably the firm’s value putting element of tax into consideration. Therefore, according to them, the capital structure is very relevant to the value of the firm as it enhances the ability and capacity of the firm to maximize its value by increasing the level of debt in their capital structure (Sabin & Miras, 2015). The theory of M&M (1958, 1963) has gone through series of criticism as it is seen by many researchers as unrealistic because of the many assumptions.
made that are impracticable (Sabin & Miras, 2015). The fact that imperfect capital market, cost of
transaction and cost of bankruptcy exists in the real sense of it made the theory of M&M limited in
terms of applicability (Foo, Jamal & Mohd, 2018).

Trade-Off Theory

This theory is an offshoot of M&M theory. It posits that each source of finance has its own
merits and demerits, benefits and costs (Awan & Amin, 2014). The capital structure of a firm
considered to be optimal is, therefore, identified and characterized by the tradeoff that exists
between the benefit and cost of debt financing (Myers, 1984). The trade-off theory indicates that
firms with high profits will enjoy the benefit of tax shield by the increased use of borrowed fund
without any risk of distress financially, thus presupposing that a particular firm can make use
of a high level of debt in their capital structure (Kausar, 2014). Nevertheless, the trade-off theory
suffered numerous criticisms in that it can only be corrected when it is assumed that there is no
cost of adjustment (Myers, 1984). Moreover, the theory ignores the impact of retained earnings on
the capital structure as this earning that is retained may have no cost or risk (Frank & Goyal, 2019).

Pecking Order Theory

Myers and Majluf (1984) introduced this theory to explain the fact that there is no existence
of optimum capital structure and that manager prefers to use sources that are internal to finance
and promote their operations. The theory emanated from the fact that information asymmetry
arises between stakeholders and managers and that manager knows and have information that
external investor does not know about performance of the firm (Nirajini & Priya, 2013). It posits
that the major sources of funds available to firms to finance its needs are the internal and external
sources of fund. The claim of the theory is that managers of corporate organizations prefer
internal sources of financing first (retained earnings or liquid assets that are excess) and then
external finance. If there are not enough internal sources to finance business projects, firms may
resort to the use of sources of financing that are external. However, if corporate firms decide to
resort to sources of financing that are external, it follows the order of debt financing first, issuance
of preferred stock secondly and the eventual issuance of common stock so as to reduce the added
costs and disadvantages of asymmetric information, (Abosede, 2012). In any case though, the
theory of pecking order did put the effect of tax shield into consideration (Acaravci, 2015; Frank
& Goyal, 2019).

Agency Cost Theory

Jensen and Meckling (1976) developed this theory to examine the conflict of interest that exists
between shareholders (principal) and agents (decision makers). Agency cost, therefore, arises from
the conflict of interest that exists between principal and agent (Ahmad, 2012). The theory opines
that capital structure that is optimal is achieved at the point where the benefit accruing to debt
financing offsets the agency cost of borrowing or debt financing (Brendea, 2018). However, this
theory was criticized that it only described the processes of the behavior of human beings and
does not reflect the overall motivation behind the behavior of different people (Baumuller, 2007).

The Market Timing Theory (MMT)

The assumption of this theory is that capital structure that is optimal does not exist because
decisions on finance are constantly changing (Baker & Wurgler, 2002). The theory suggests
that the decisions to issue new equities depends on the condition of the market and that these
change in the market conditions will exert a very strong influence in the years to come because the adjustment of debt is not a goal in itself (Hovakimian, Gayane & Tehranian, 2019). Generally, firms that are less indebted are those who have funds that have been accumulated overtime when they were overestimated and firms that are indebted implicitly are those who have made use of external sources of funds when their overall assessments were very detrimental.

From the various theories reviewed, there are conflicting and divergent views on capital structure and firm performance. However, the study follows and sticks to the pecking order theory as its theoretical framework. The choice of this theory is based on its wide applicability and the fact that it predicts that a negative relationship exists between capital structure and firm performance.

**Empirical Literature**

Nassir (2016) examined the impact of capital structure on industrial firms’ performance in Turkey. Annual accounts of 136 firms in the industrial sector quoted on the Istanbul Stock Exchange (ISE) were utilized for the analysis ranging from the period of 2005 through 2012. A regression analysis that is multivariate was applied to assess the causal relationship between capital structure and firm performance. The outcome revealed that the nexus between capital structure and firm performance is negative and statistically significant. Nenu, Vintila and Gherghina (2017) evaluated those factors that influence the capital structure of firms quoted in the Romanian stock market within the period of 2000-2016. Fixed-effects regression analysis that is multivariate and the dynamic systems GMM (Generalized Method of Moments) was applied on a panel data comprising the quoted firms on the Bucharest Stock Exchange. The outcome of the study revealed that leverage has positive correlation with the company’s size and the volatility of share prices. Conversely, the structure of the debt has an impact that is different on the performance of corporate firms. Gabrijelcic, Herman and Lenarcic (2016) and Akeem, Terer, Kiyanjui and Kayode (2019) used the technique of regression to ascertain capital structure effect on firm performance within the pecking order framework. The results showed that the relationship between firm performance and the debt-to-equity ratio is negative. Schulz (2017) used the panel data of small and medium-scale firms in Netherland to evaluate the effect that capital structure has on their performances between 2008 and 2015. The research utilized the panel regression method, and the results showed a negative and significant relationship between capital structure and return on asset (performance) and this strongly supports the theory of pecking order.

Mursalim and Kusuma (2018) evaluated the determinants of capital structure of Malaysia, Thailand and Indonesia. Variables used were gross domestic product (GDP rate), corporate governance, growth opportunity, volatility, profitability, firm size, inflation rate using the two stage least square regressions. The findings revealed that company’s profit, size of the firm and volatility has consistent and significant roles in trying to explain the changes that occur in capital structure composition. Meero (2017) determined the nexus between capital structure and firm performance in Gulf economies. He differentiated between the Islamic banks and the conventional banks with respect to their capital structure and their performances. The findings revealed that return on asset is significant and negatively related to financial leverage and positively correlated with the ratio of equity to asset. Anarfo (2015) observed that there exists no relationship that is significant between elements of capital structure and firm’s performance in Africa. Negasa (2016) provided evidence empirically to support theory of tradeoff and a relationship that is positive between the level of debt and profitability.
Methodology

Research Design, Population, Sample, Scope and Source of Data

The study adopted the longitudinal research design because the variables considered are historical in nature and they were collected over a period of time. The population of the study comprises all manufacturing firms quoted on the Nigeria stock exchange as of 2017. However, twelve (12) multinational companies out of the quoted manufacturing firms were purposively selected to form the sample. However, the sample was further subjected to the following filtering criteria:

1. Firms with missing data for any of the variable (dependent and independent) during the study period are dropped.
2. Firms with values that are extreme for any of the variables of capital structure are also dropped.
3. Firms with values that are extreme for any of the variables of performance are also dropped.
4. Firms with stocks that are actively traded on in the market.

These criteria eventually reduced the sample to six multinational companies that includes United Africa Company for Nigeria (UAC), Transcorp Nig, Scoa Nig, John Holt Nig, Chellarams Nig and A.G. Leventis Nig as the sample of the study. The data was collected from annual financial report of Nigeria Stock Exchange (NSE) for a period of ten (10) years ranging from 2008 to 2017.

Preliminary Test and Estimation Procedure

The various preliminary tests carried out are descriptive statistic, correlation analysis and unit root test. Descriptive statistic is used to summarize the statistical properties of data in a bid to present them in a convenient form. The group panel unit root techniques of Philip Peron (PP) and Levin, Lin and Chut were used to ascertain how stationary the variables considered in the model are. Correlation analysis was used to ascertain the magnitude and direction of relationship that exists between the dependent and independent variables.

When there is evidence of linear relationship in the results, the panel data regression analysis is conducted to predict and forecast the dependent variable. First the Fixed Effect Method (FEM) and the Random Effect Method (REM) were carried out on the variables. Finally, the Hausman test is conducted on the REM to choose between the FEM and REM. If the chi-square statistics of the Hausman test is significant, then the FEM is preferred. Otherwise, the REM is preferred. The panel data regression is used because it caters for endogeneity and exogeneity problem in the data.

Theoretical Underpinning

In this study, the pecking order theory is used for theoretical framework. The theory clearly states that there is no capital structure that is optimal, and that capital structure negatively influences firm performance. The equation is given as;

\[ Z = f(X,Q) \]  

\[ Z_{it} = \beta_0 + \beta_1 X + \beta_2 Q + \epsilon_{it} \]
Where

\[ Z = \text{Firm Performance} \]
\[ X = \text{Capital Structure ratio for company ith in time t} \]
\[ Q = \text{other firm specific factors like board diversity and firm size for company it in time t} \]
\[ \varepsilon_{it} = \text{Error term} \]

**Model Specification**

Incorporating the variables under consideration into equation (2), and carefully following the model of Dai (2017), Basit and Irwan (2017). The functional form of the model is given as;

\[ \text{FRMP} = f(\text{CAPST, BSIZE, BINDP, FAGE, FSIZE}) \] ...........................(3)

The econometric version of the model is given as;

\[ \text{FRMP}_{it} = \beta_{0it} + \beta_1 \text{CAPST}_{it} + \beta_2 \text{BSIZE}_{it} + \beta_3 \text{BINDP}_{it} + \beta_4 \text{FAGE}_{it} + \beta_5 \text{FSIZE}_{it} + \varepsilon_{it} \]

Where:

\[ \text{FRMP} = \text{Firm Performance} \]
\[ \text{CAPST} = \text{Capital Structure} \]
\[ \text{BSIZE} = \text{Board size} \]
\[ \text{BINDP} = \text{board independence} \]
\[ \text{FAGE} = \text{Firm age} \]
\[ \text{FSIZE} = \text{Firm size} \]
\[ \beta_{0it} = \text{Constant (Intercept)} \]
\[ \beta_1, \beta_2, \beta_3, \beta_4, \beta_5 \text{ are parameters to be estimated} \]
\[ \varepsilon_{it} = \text{Error term} \]
\[ it = \text{the ith of the firm at time t} \]

Apriori expectation of the variables derived from theoretical and empirical literature is given as;

\[ \beta_0 > 0, \beta_1 < 0 \text{ while } \beta_2, \beta_3, \beta_4, \beta_5 > 0 \]

It is important to point out here that if \( \beta_1 < 0 \) then the pecking order theory is valid in Nigeria.
Operationalization of Variables Employed

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Std. Dev.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Jarque-Bera</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRMP</td>
<td>2.6790</td>
<td>1.8790</td>
<td>3.2200</td>
<td>-1.7800</td>
<td>0.7800</td>
<td>-1.8800</td>
<td>4.8100</td>
<td>8.590989</td>
<td>0.013630</td>
</tr>
<tr>
<td>ROA</td>
<td>187.45</td>
<td>131.65</td>
<td>25.23</td>
<td>40.10</td>
<td>197.58</td>
<td>4.6373</td>
<td>30.0839</td>
<td>2052.084</td>
<td>0.000000</td>
</tr>
<tr>
<td>BSIZE</td>
<td>0.8000</td>
<td>0.0710</td>
<td>0.9000</td>
<td>0.4300</td>
<td>0.1243</td>
<td>-0.0401</td>
<td>2.1546</td>
<td>3.173655</td>
<td>0.405996</td>
</tr>
<tr>
<td>BOID</td>
<td>8.5000</td>
<td>34.5000</td>
<td>42.0000</td>
<td>1.0000</td>
<td>11.7422</td>
<td>-0.5330</td>
<td>2.6353</td>
<td>26.56786</td>
<td>0.204574</td>
</tr>
<tr>
<td>FAGE</td>
<td>30.50</td>
<td>7.1800</td>
<td>8.3100</td>
<td>6.4000</td>
<td>0.5211</td>
<td>-1.5607</td>
<td>3.9399</td>
<td>3.959155</td>
<td>0.000002</td>
</tr>
<tr>
<td>FSIZE</td>
<td>7.32</td>
<td>7.1800</td>
<td>8.3100</td>
<td>6.4000</td>
<td>0.5211</td>
<td>-1.5607</td>
<td>3.9399</td>
<td>3.959155</td>
<td>0.000002</td>
</tr>
</tbody>
</table>

Data Presentation and Analysis

Descriptive Statistic

Table 4.1: Summary Statistic

<table>
<thead>
<tr>
<th>Variables</th>
<th>Status</th>
<th>Symbol</th>
<th>Exp</th>
<th>Sign</th>
<th>Computation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm Performance</td>
<td>FRMP</td>
<td>ROA</td>
<td></td>
<td></td>
<td>Proxy by Return on Asset (ROA), it is a better indicator when comparing firms within the same industry. Net Income Total Asset</td>
</tr>
<tr>
<td>Capital Structure</td>
<td>CAPST</td>
<td>+/-</td>
<td></td>
<td></td>
<td>Total Liability Total Equity</td>
</tr>
<tr>
<td>Board Size</td>
<td>BSIZE</td>
<td>+</td>
<td></td>
<td></td>
<td>Total number of board size</td>
</tr>
<tr>
<td>Board Independence</td>
<td>BINDP</td>
<td>+</td>
<td></td>
<td></td>
<td>Non-Executive Directors</td>
</tr>
<tr>
<td>Firm Age</td>
<td>FAGE</td>
<td>+</td>
<td></td>
<td></td>
<td>Difference between year of listing and current year +1</td>
</tr>
<tr>
<td>Firm Size</td>
<td>FSIZE</td>
<td>+</td>
<td></td>
<td></td>
<td>Log of Total Assets</td>
</tr>
</tbody>
</table>

Source: Researcher’s own Processing

The Jarque-Bera statistic values for the variables are not significant when compared to their corresponding probability values (except for CAPST and FAGE) at 1% and 5% level of significance. This shows that the variables under investigation are normally distributed (except for capital structure and firm age). There is a variation that is significant between the minimum and the maximum values. Only CAPST and FSIZE variable skewed to the right thereby having a long tail to the right as indicated by their skewness positive value. Other variables skewed to the left thereby having a long tail to the left from it mean. FRMP, CAPST and FAGE variables showed peak distribution properties as indicated by their corresponding Kurtosis value that is greater than 3.0 approximately that is relative to normal. Other variables showed the property of a flat distribution with Kurtosis value that is less than 3.0 relative to normal, except for BOID that is normal as revealed by the kurtosis value that is approximate to 3.0. Since all the variables did not follow normal distribution, the data were further subjected to unit root test for stationarity.
Unit Root Test

Table 4.2 Group Stationarity Test

<table>
<thead>
<tr>
<th>Variables</th>
<th>Philip Peron Statistic</th>
<th>Levin, Lin &amp; Chut (LLC) Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Order</td>
<td>Remark</td>
</tr>
<tr>
<td>FRMP</td>
<td>34.6209</td>
<td>1(1) Stationary</td>
</tr>
<tr>
<td>CAPST</td>
<td>37.1908*</td>
<td>1(1) Stationary</td>
</tr>
<tr>
<td>BSIZE</td>
<td>50.4309*</td>
<td>1(1) Stationary</td>
</tr>
<tr>
<td>BOID</td>
<td>54.6921*</td>
<td>1(1) Stationary</td>
</tr>
<tr>
<td>FAGE</td>
<td>48.3221</td>
<td>1(1) Stationary</td>
</tr>
<tr>
<td>FSIZE</td>
<td>66.6533*</td>
<td>1(1) Stationary</td>
</tr>
</tbody>
</table>

Source: Researcher’s computation using E-views (2018)

From Table 4.2, both the Philip-Peron and Levin, Lin & Chut test unanimously agreed that all variables under investigation are stationary at first difference. That means that they are integrated of order one I(1). Thus, it is established that the variables can be used for further estimation.

Correlation Analysis

Table 4.3 Correlation Matrix

<table>
<thead>
<tr>
<th>Correlation Statistic Probability</th>
<th>FRMP</th>
<th>CAPST</th>
<th>BSIZE</th>
<th>BOID</th>
<th>FAGE</th>
<th>FSIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRMP</td>
<td>1.000000</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>CAPST</td>
<td>-0.572639</td>
<td>1.000000</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>BSIZE</td>
<td>0.206945</td>
<td>-0.337280</td>
<td>1.000000</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>BOID</td>
<td>0.098893</td>
<td>-0.240216</td>
<td>0.265566</td>
<td>1.000000</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>FAGE</td>
<td>0.013242</td>
<td>0.218379</td>
<td>-0.298368</td>
<td>-0.419167</td>
<td>1.000000</td>
<td>-----</td>
</tr>
<tr>
<td>FSIZE</td>
<td>-0.108608</td>
<td>-0.182374</td>
<td>0.234924</td>
<td>-0.100230</td>
<td>-0.418571</td>
<td>1.000000</td>
</tr>
</tbody>
</table>

Source: Researcher’s computation using E-views (2018)

The correlation matrix shows the direction of relationship and relative strength between all variables under investigation. Only capital structure (CAPST) and FSIZE have relationship that is strong negatively with respect to FRMP as shown by their corresponding r = -0.57 and -0.11 respectively (except for FSIZE that is very weak). However, only the relationship of CAPST
is significant as indicated by the probability value of 0.000. BSIZE, BOID and FAGE have a relationship that is non-significant and weak positively with respect to FRMP. The correlation matrix further revealed the absence of multi-collinearity among variables, since there is no correlation coefficient among variables that exceeds 0.80.

**Panel Regression Result**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Fixed Effect Method (FEM)</th>
<th>Random Effect Method (REM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$C$</td>
<td>134.2890*</td>
<td>7.963004</td>
</tr>
<tr>
<td></td>
<td>(2.76)</td>
<td>(0.38)</td>
</tr>
<tr>
<td></td>
<td>[0.008]</td>
<td>[0.71]</td>
</tr>
<tr>
<td>$CAPST$</td>
<td>0.004915</td>
<td>-0.023897*</td>
</tr>
<tr>
<td></td>
<td>(0.31)</td>
<td>(-2.66)</td>
</tr>
<tr>
<td></td>
<td>[0.76]</td>
<td>[0.01]</td>
</tr>
<tr>
<td>$BSIZE$</td>
<td>-0.439679</td>
<td>0.866928</td>
</tr>
<tr>
<td></td>
<td>(-0.52)</td>
<td>(1.37)</td>
</tr>
<tr>
<td></td>
<td>[0.61]</td>
<td>[0.18]</td>
</tr>
<tr>
<td>$BOID$</td>
<td>4.451136</td>
<td>8.392265</td>
</tr>
<tr>
<td></td>
<td>(0.50)</td>
<td>(1.04)</td>
</tr>
<tr>
<td></td>
<td>[0.62]</td>
<td>[0.31]</td>
</tr>
<tr>
<td>$FAGE$</td>
<td>-0.021310</td>
<td>0.046912</td>
</tr>
<tr>
<td></td>
<td>(-0.05)</td>
<td>(0.67)</td>
</tr>
<tr>
<td></td>
<td>[0.96]</td>
<td>[0.51]</td>
</tr>
<tr>
<td>$FSIZE$</td>
<td>-17.97918*</td>
<td>-2.230592</td>
</tr>
<tr>
<td></td>
<td>(-2.7)</td>
<td>(-0.97)</td>
</tr>
<tr>
<td></td>
<td>[0.01]</td>
<td>[0.34]</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.385102</td>
<td>0.246019</td>
</tr>
<tr>
<td>$Adj R^2$</td>
<td>0.242102</td>
<td>0.167480</td>
</tr>
<tr>
<td>$F$-Stat</td>
<td>2.693025</td>
<td>3.132423</td>
</tr>
<tr>
<td>$Prob$</td>
<td>0.011764</td>
<td>0.015844</td>
</tr>
<tr>
<td>D.W Stat</td>
<td>1.981149</td>
<td>1.668620</td>
</tr>
</tbody>
</table>

Note: $t$-stat () and Prob [ ]

**Hausman Test**

<table>
<thead>
<tr>
<th>Test Summary</th>
<th>Chi-Sq. Statistic</th>
<th>Chi-Sq. d.f.</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross Section Random</td>
<td>0.000000</td>
<td>5</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

* indicates significance at 1% level

Source: Researcher’s computation using E-views (2018)

An analysis of the fixed and random effect regression results is done. The Hausman test is conducted on the random effect estimate to choose between the different levels of fixed and random effect. From the Hausman test, it is seen that the Chi-square statistic of 0.000 approximately is not significant to undermine the efficient and predictive power of random effect coefficient estimate. Thus, the random effect estimation is preferred.

The random effect shows clearly that approximately 25% of total systematic change in multinational firm performance is explained by the all the variables that are independent put together as shown by the $R^2$ value of 0.25. And after adjusting for degree of freedom, 17% of total systematic variation in firm performance is still explained by the model as shown by the Adjusted $R^2$ bar of 0.17. This means that the model does not have a tight fit of the regression line.
as 75% of total change in dependent variable was not explained by the model hence captured by stochastic term. All the explanatory or independent variables have relationships that are significant with the dependent variable at 5% level of significance as indicated by the value of F-statistics which is 3.13 when compared to its probability value of 0.02. The result further shows that only CAPST explanatory variables pass the individual significance test as indicated by the t-statistics value of the variables that is greater than two (2) when compared to its probability value that is less than 5% (p < 0.05). This means that capital structure contributed significantly to the performance of multinational firms in Nigeria during the period of study. The D.W statistics value of 1.668 which is approximately 2.0 shows that there is no serial correlation in this result. This means that the findings of this study are useful for recommendation of policy.

All the explanatory variables have varied degree of relationship with multinational firms’ performance though with different magnitude. Only capital structure (CAPST) has a relationship that is significant and negatively impacts multinational firm’s performance. This result therefore confirms the validity of pecking order theory in multinational firms operating in the Nigerian manufacturing industry. Firm size (FSIZE) has a relationship that is non-significant and negatively impacts the performance of the firms in Nigeria. BSIZE, BOIND and FAGE are non-significant and positively impact the performance of firms in Nigeria. This therefore presupposes that increase in these variables will lead to a non-significant increase in the performance of multinational firms in Nigeria.

**Summary of Findings**

This study has shown in clear terms that:

1. Capital structure has a negative and significant relationship with the performance of multinational firms in Nigeria. This means that multinational firms in the manufacturing sector of Nigeria uses retain earnings and liquid asset in financing rather than debt and equity mix, thereby confirming the position of the pecking order theory.
2. Board size, board independence and age of the firm are non-significant and positively impact firm performance in Nigeria.
3. Firm size is non-significant and negatively affects the performance of the firm in Nigeria.

**Conclusion and Recommendations**

In this study, the impact of capital structure on the performance of multinational firms in Nigeria is assessed. Panel data from 2008 to 2017 was obtained from the Nigerian Stock Exchange (NSE) Annual Publication 2017. And analyzed, using descriptive statistic, ADF statistic, Levin, Lin and Chut statistic, correlation analysis and panel regression techniques. The results revealed that capital structure is significant and negatively impacts the performance of multinational firms in Nigeria thereby confirming the validity of the pecking order theory. Other firm specific factors of age, board independence, board size and firm size considered are non-significant and positively related to multinational firm’s performance as pointed out by the Random Effect Method (REM) (except for FSIZE). This is in line with the findings of Gabrijelcic, Herman and Lenarcic (2016) and Akeem, Terer, Kiyanjui and Kayode (2019) in the literature. The findings of this study gave impetus for the following recommendations:

- Managers of multinational companies should continue to prioritize such that they make use of the internally generated funds (retained earnings) first and if this source of finance has been exhausted, they resort to the use of debt capital and eventually equity source of financing.
In the course of trying to improve financial performance, managers of multinational companies want to be careful of over utilizing debt which reduces firm performance in the long run.

To maximize shareholder wealth and to achieve improved financial performance, managers of multinational firms must ensure the movement of their capital structure to a level that is considered optimal (where cost of capital is at minimum and value of the firm is at maximum) and strive to sustain and maintain it as much as possible.

Managers of multinational firms should ensure adequate composition of the board, enhance and strengthen their independence so that their impact on the performance of multinational firms will be made more visible and significant.

Since the impact of total asset (FSIZE) is positively related to the performance of multinational firms, management should engage in prudent management of cash and other form of assets whether fixed or current so that the effect of total asset on the performance of multinational firms can be made more dominant and significant.

References


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