IMPACT OF FIRM ATTRIBUTES IN THE DETERMINATION OF CAPITAL STRUCTURE OF LISTED FOOD AND BEVEARGES FIRMS IN NIGERIA

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Abstract

The study examines the impact of firm attributes in determination capital structure of listed food and beverages companies in Nigeria from the perspective of pecking order and trade off theories. Firm characteristics are proxied by growth opportunity, firm size, profitability, assets tangibility and non-debt tax shields, while the dependent variable (capital structure) is represented by leverage. The study uses secondary data collected by means of documentation for the period of ten years ranging from 2008-2017. The research design employed was correlational in nature. The hypotheses formulated for the study was tested by mean of robust multiple regression equation. Post estimation tests such as multicollinearity and heteroscedasticity tests were carried out to validate the results. The findings of the study on one hand show that non-debt tax shields has no significant effect on the companies' leverage, but in the case of growth opportunity, firm size and assets tangibility, positive statistical significant relationships were established. On the other hand, profitability has been established to show significant negative relationship with leverage. The study concludes that firm characteristics have significant effect on financing mix of the companies under investigation. Therefore, the study recommends that companies should be wary of increasing debt finance in their financing mix by only taken into cognizance of these firm specific attributes. Finance managers should carefully consider the costs of taken on more debts and painstakingly strike a balance between the costs of debt and their eventual benefits thereof. Finally, regulatory authorities should come up with flexible rules that will enable companies have easy access to long term debt financing option.

Keywords: Firm characteristics, Growth opportunity, Firm size, Tangibilty, Profitability and non-debt tax shield

Introduction

The corporate capital structure of a firm, alternatively called leverage or gearing is the proportion of a company's long term debt (and preference shares if any) to ordinary share capital. It describes the mix of debenture, long term debt, preference shares and equity share capital. It represents the major claim to a corporation's assets. In financing decisions, the financial managers may decide to increase the owners' claims by issuing ordinary shares or in the alternative, increase the creditors' claims by borrowing. This is with the aim of ensuring a financing mix that enhances firm value.

One of the many objectives of corporate financial managers is to ensure a financing mix that minimizes the cost of capital and maximizes the overall firm value. Capital structure is one of the effective tools financial managers use to achieve this important target. Incorrect decision about financing mix therefore may lead to unexpected and undesirable outcome. Decision between equity and debt financing poses a great challenge to management and it requires financial managers to largely use their skills, competence and acumen as decision about capital mix has a long term effect on firm's

future cash flow and going concern status. Issuing equity enables firms to access finance without being forced to meet interest expense obligation, but dilute ownership. Debt, on the other hand provides access to capital without ceding control. It provides access to an alternative and perhaps, a cheaper source of financing up to a certain risk level. However, taking on more debt increases agency costs (and potential agency conflicts) between debt holders and equity holders, increases financial risk and may eventually lead to bankruptcy in case of default to meet debt obligations.

What drives and influences firms to include more or less debt in their financing mix has long been a subject of debate in corporate finance and has generated a great deal of discussion that dates back to the early work of Modigliani & Miller's irrelevance proposition of 1958. Previous empirical evidences and finance theories such as the tradeoff and pecking order models particularly identified firms' specific characteristics as important factors that influence firm's debt/equity choice. Some studies (see Antonios, Yilmaz, & Krishna 2008) however argued that though the company specific factors strongly influences the capital structure decisions of firms, the financing behavior of firms is also strongly affected by the market and economic conditions in which the entities operate.

In Nigeria however, even though there are limited empirical studies in the area, yet, a lot of gap in methodology and literature have been identified in these prior studies, hence, the need to fill them. Some of these previous empirical studies conducted in Nigeria on firm characteristics and leverage made use of panel data methodology, and as their method of estimation, these prior studies employed the use of pooled ordinary least square (OLS) as their method of estimation. However, OLS is widely believed in the literature of econometrics to be a restrictive model in terms of panel data estimation. This is for disregarding the space and time dimension of pooled data. The OLS's naïve and restrictive assumption of constant coefficients across time and individual firms in a pooled data may distort the true picture of the relationship between the dependent and independent variables in a regression model. Therefore, this may affect the validity of the inferences made by these studies. These prior studies include that of Salawu (2007), Anifowose (2009), Shehu (2012), among others. This study is however unique because variables such as growth opportunity, firm size, profitability, tangibility and non-debt tax shields are examined against capital structure (leverage). Further, to improve the validity of the inferences made, more robust techniques of panel data estimation were run.

The Nigerian food and beverages industry remains the largest in manufacturing in Nigeria. Although it operates below its potentials (manufacturingtodaynigeria.com), it has performed better than a number of other sectors as it witnessed expansion in investment in recent years. Along with the agricultural sector, the sector bears the handsome responsibility of feeding a populous and developing nation like Nigeria. The food and beverages industry in Nigeria is at the fore in the manufacture of dairy products, hot beverages, seasonings, convenience foods, confectionaries and staple foods such as bread, pasta and noodles. The solid growth currently being experienced by the industry, together with a great deal for expansion in the long run, the need for proper financing mix and careful capital selection in the sector remains highly imperative. It therefore presupposes that careful mix of debt and equity in the financial structure of this important industry will impact on the success and future prosperity of the firms operating in the sector. In view of this, the study aim is to empirically examine the impact of firm attributes on capital structure of food and beverages firms in Nigeria. The research findings would be of benefit to corporate financial managers particularly those of listed food and beverages firms in Nigeria who have to make an appropriate mix of debt and equity in order to minimize cost of capital and maximize overall firm value.

Literature Review and Hypotheses development

Capital structure, variously called financial leverage or gearing is the proportion of a company's long term debt (and preference shares if any) to ordinary share capital. An entity may for instance, have 30% debt and 70% equity or 40% debt and 60% equity making up its capital structure. According to Myers (2001), capital structure attempts to explain the mix of securities and financing sources used by corporations to finance real investments. The capital structure decision is at the center of many other decisions in corporate finance. Management decisions as dividend policy, financing of mergers and acquisitions, capital budgeting etc are all tied to capital structure decision. What influences management decision to include more or less debt in their capital structure has been a subject of interest among finance scholars and practitioners alike. The extant literatures of corporate finance and previous empirical studies in the area have advanced series of arguments as to how firm attributes explain the use of debt in firms' capital structure. These firm attributes include; growth, size, profitability, tangibility and non-debt tax shields.

Growth and leverage

The literature of corporate capital structure revealed two extreme positions as regards the effect of firm growth opportunity on leverage. The agency costs for growing firms are expected to be higher as these firms have more flexibility with regards to future investments (Anifowose, 2010). The reason being that bond holders fear that such firms may go for risky projects in future as they have more choice of selection between risky and safe investment opportunity. Considering their investment at risk in future, bond holders will impose higher costs at lending to growing firms. Growing firms therefore, facing higher costs of debt will employ less debt and more equity in their capital structure. In contrast, Drobetz and Fix 2003 suggest that a firm will first use internally generated funds which may not be sufficient for a growing firm, and so next option for the growing firm is to use debt financing, which implies that a growing firm will have a high leverage. Based on these arguments the study hypothesizes that;

H01: Growth opportunity has no significant effect on the leverage of listed food and beverages firms in Nigeria

Firm size and leverage

The relationship between firm size and leverage is also mixed and inconclusive in the literature of corporate finance. According to Anifowose 2010, large firms do not consider the direct bankruptcy costs as an active variable in deciding the level of leverage as these costs are fixed by the constitution and constitute a smaller proportion of the total firm's value. And large firms being more diversified have less tendencies of bankruptcy (Titman and Wessels 1988). This therefore suggests a positive relationship between size and leverage. On the contrary, Frank and Goyal (2007) argue that large firms have been around longer and are better known. Thus, large firms face lower adverse selection and can more easily issue equity compared with small firms where adverse selection problems are severe. The study therefore hypothesizes that;

H02: firm size has no significant influence on leverage of listed food beverages firms in Nigeria

Profitability and leverage

Profitability is one of the firm specific characteristics that is widely believed in the literature of corporate finance to have effect on firms' debt/equity choice. However, there is no consensus view as regards the direction of the relationship. Modigliani and Miller (1963) argue that, due to the tax deductibility of interest payments, companies may prefer debt to equity. This therefore would suggest that highly

profitable firms would choose to have high levels of debt in order to obtain attractive tax shields that characterize debt financing. Frank & Goyal (2007) suggest that profitable firms would have more debt in their financial structure. This is because expected bankruptcy costs are lower, and interest tax shields are more valuable for profitable firms. They also posit that agency costs, taxes, and bankruptcy costs push more profitable firms toward higher book leverage. Expected bankruptcy costs declines when profitability increases. The deductibility of corporate interest payments induces more profitable firms to finance with debt. Thus, suggest a positive relationship between profitability and leverage. In another view, Baral (2004) maintained that more profitable firms have more capacity to borrow and providers of debt will be more willing to provide funds because the probability of default is lower than for less profitable firms. It is hypothesize thus;

H_{03}: Profitability has no significant impact on leverage of listed food and beverages firms in Nigeria

Tangibility and leverage

An entity with large amount of tangible assets can borrow at a cheaper rate of interest by providing the security of these tangible assets to lenders. According to Frank and Goyal (2009), assets tangibility has an important effect on the costs of financial distress. They argue that, tangible assets are easier to collateralize, and they suffer a smaller loss of value when firms go into distress, thereby, suggesting that firms with more tangible assets will employ more debt in their capital structure. Similarly, Rajan & Zingales (1995) note that if a large fraction of a firm's assets are tangible, then assets should serve as collateral, diminishing the risk of the lender suffering the agency costs of debt like (risk shifting). Assets should also retain more value in liquidation. Therefore, the greater the proportion of tangible assets on the balance sheet, the more willing should lenders be to supply loans, and leverage should be higher.

The study hypothesizes that;

H_{04}: Tangibility has no significant effect on leverage of listed food and beverages firms in Nigeria

Non-debt tax shield and leverage

Firms generally make use of debt financing in order to exploit the tax deductibility of interest to reduce their tax bill. Interest tax shields resulting from the use of debt in corporate financing are not the only way of reducing corporate tax liabilities. The existence of non-debt tax shields provides an alternative (and perhaps less costly) means of reducing income taxes and may serve to mitigate the benefit of debt tax shields (Cloyd, Limberg, and Robinson, 1997). Therefore, firms with high non-debt tax shields will have less debt in their capital structure. Similarly, De-Angelo & Masulis (1980) posit that tax deductions for depreciation and investment tax credits are substitutes for the tax benefits of debt financing. As a result, firms with large non-debt tax shields relative to their expected cash flow include less debt in their capital structures. In the same vein, Schulman, Deborah, Sellers, & Kennedy (1996) argue that if a firm uses sufficient tax shields from depreciation to reduce taxable income to zero, debt may yield no additional tax benefit and capital structure decisions will be based on non-tax considerations. Based on this, the study hypothesizes that;

H05: Non-debt tax shield has no significant influence on leverage of listed food and beverages firms in Nigeria

Methodology and Variable Measurement

The study examines the influence of firm attributes in the determination of capital structure of listed food and beverages firms in Nigeria over a ten years period from 2008 to 2017. For the purpose of this study, correlational research design is employed to describe the statistical association between the

variables of the study. The population of the study consist of all the twenty-one (21) food and beverages firms quoted on the floor of Nigerian Stock Exchange (NSE) as at 2017. Based on the following criteria however, a total of twelve firms are filtered out, leaving a balance of nine firms as the sample of the study. The study makes use of data largely obtained from secondary sources through the sampled firms' annual reports and accounts. Multiple regressions are adopted to examine the model of the study.

I. A firm must have been quoted on the floor of Nigerian Stock Exchange at least 1 year before 2008.
ii. A firm must be on the NSE listing and its shares constantly traded on the floor of the Exchange for most of the period covered by the study.
iii. A firm must have its annual report and accounts accessible for most of the period under study.

Technique of data analysis

Multiple regressiosn was used to analyze the relationship between firm attributes and capital structure (leverage). The data of the study is panel (that is a combination of cross sectional and time series). The regression was therefore run in a panel manner, hence, various options of panel data regression were run. These include OLS regression, random effect GLS regression and fixed effect (within) regression. Hausman specification test was run to determine the choice between fixed and random effect regression. In addition, Lagrangian multiplier test for random effects was also conducted to determine the appropriate alternative between pooled OLS regression and random effect model (as suggested by the Hausman specipication test). Therefore, the result is reported using pooled OLS regression suggested by the Breusch and pagan lagrangian multiplier test for random effects.

Model Specification

To test for the hypotheses of this study, the functional model is specified as follows;
LEV = f (GROWTH, SIZE, PROF, TANG, NDTS). This is mathematically expressed as;

$$LEV_{it} = \alpha o + \beta_1 GROWTH_{it} + \beta_2 SIZE_{it} + \beta_3 PROF_{it} + \beta_4 TANG_{it} + \beta_5 NDTS_{it} + \mu_{it} \ldots\ldots\ldots\ldots\ldots\ldots$$

Where;

LEV_{it} = Ratio of Interest bearing debts to total assets of firm i in year t
$GROWTH_{it}$ = Growth of firm i in year t
$SIZE_{it}$ = Size of firm i in year t
$PROF_{it}$ = Profitability of firm i in year t
$TANG_{it}$ = Assets tangibility of firm i in year t
$NDTS_{it}$ = Non-debt tax shields of firm i in year t
μ_{it} = Error term;
α = Constant or intercept
$\beta_1 - \beta_5$ = The slopes or parameter estimates

Variable Measurement

Leverage (Dependent Variable)
LEV is measured as long term debt plus short term debt divided by total assets

GROWTH is measured as annual percentage increase in total assets

SIZE measured as natural log of total revenue/sales

PROF measured as earnings before interest and tax divided by total assets

TANG measured as the ratio of tangible fixed assets plus inventories to total assets
NDTS measured as annual depreciation divided by total assets

Results and Discussion

This section presents and discusses the results of the tests conducted on the data collected for the study. The results are presented using tables. It follows with descriptive statistics and then correlation matrix. This is where the analysis of the results to tests the hypothesis of the study is conducted.

Descriptive statistics

Table 1 presents descriptive statistics of the variables of the study. The mean, standard deviation, minimum and maximum have been use to describe the data.

Table 1: Descriptive Statistics

Variables	Obs	Mean	St Dev	Minimum	Maximum	Skewness	Kurtosis
LEV	90	0.2020	0.1831	0.0000	0.6549	0.6267	2.4879
GROWTH	90	0.3256	0.4563	-0.8723	1.9752	1.0886	5.1014
SIZE	90	16.5561	1.4546	13.3254	19.2344	-0.0715	2.0440
PROF	90	0.1561	0.1465	-0.2925	0.4552	-0.3033	3.1623
TANG	90	0.6462	0.1639	0.2709	0.9155	-0.3269	1.9952
NDTS	90	0.0428	0.0181	0.0083	0.0882	0.4285	2.5908

Source: Extracted from STATA output 10.0

Table 1 shows that the mean of leverage, growth, size, tangibility and non-debt tax shields are 0.2020, 0.3256, 16.5561, 0.1561, 0.6462 and 0.0428 respectively. The 20% mean value of leverage suggests that about 20% of the firms' assets are financed by interest bearing liabilities during the period of the study. Considering the standard deviation, which measures the degree of dispersion of the variables from their mean values, it reveals that the most volatile of the variables are growth opportunity, profitability with standard deviations of 46% and 15% respectively. The least volatile of the variables are firm size, tangibility, LEV and non-debt tax shields with standard deviations of 1.45, 16%, 15% and 2% respectively.

Correlation Matrix

The correlation matrix as presented in Table 2 shows the associated link between explanatory variables and the explained variables.

Variables	LEV	GROWTH	SIZE	PROF	TANG	NDTS
LEV	1.0000					
GROWTH	0.1820	1.0000				
SIZE	0.2609	0.0741	1.0000			
PROF	-0.3087	0.2138	0.2070	1.0000		
TANG	0.3538	-0.0510	-0.0625	0.0652	1.0000	
NDTS	0.1180	-0.1231	0.1037	0.1681	0.4284	1.0000

Source: Extracted from STATA output 10.0

From table 2, LEV has a positive association with all the independent variables except profitability which shows a negative association with a correlation coefficient of -0.3087. Growth opportunities has a positive correlation with LEV at 0.1820. Firm size has positive correlation with LEV 0.2609. Profitability reports a negative relationship with LEV with a correlation coefficient of -0.3087. A positive association is however observed between assets tangibility, non-debt tax shields on one hand and leverage on the other hand. The correlation coefficients are respectively 0.3538 and 0.1180 for assets tangibility and non-debt tax shields. The study conducted multicollinearity test using variance inflation factor (VIF) and its reciprocal (1/VIF) or (TOLERANCE) in order to assess the presence of multicollinearity or otherwise. The results indicate absence of multicollinearity. This is confirmed from the statistical result that shows all the VIF are not closer to 10 and TOLERANCE are respectively closer to 1. The mean value of VIF is 1.16.

Regression result

Table 3 Regression Results

Variables	Coefficient	t-statistics	Tolerance	VIF
Constant	-0.8038	-4.31 (0.000)		
GROWTH	0.1122	3.30 (0.001)	0.9262	1.08
SIZE	0.0456	4.29 (0.000)	0.9367	1.07
PROF	-0.5917	-5.46 (0.000)	0.8866	1.13
TANG	0.4628	4.55 (0.000)	0.8046	1.24
NDTS	0.1730	0.18 (0.855)	0.7668	1.30
R-Square	0.4401			
Adj-R-square	0.4068			
F-Statistic	13.19 (0.000)			

Source: Extracted from STATA output 10.0

The result from table 3 in respect of firm growth opportunity and leverage shows that firm growth is significant at 1% in explaining the leverage of listed food and beverages firms in Nigeria. This implies that Nigerian listed food and beverages companies tend to accumulate more debts in their financing mix as their growth opportunities increases. The explanation for this may be that the firms are experiencing growth, and the internally generated funds in form of retained earnings may not be sufficient for them to finance these growths, so as a next option the firms resort to debt financing. The result provides a base for the rejection of null hypothesis which states that leverage has no significant effect on the growth opportunities of listed for and beverages firms in Nigeria. This finding is consistent with prior studies by Anifowose (2010), Shehu (2012) and contradicts those of Bevan and Danbolt (2002) and Drobetez and Fix (2003).

Again, the regression result reveals that firm size has significant effect at 1% level of significance on leverage of Nigerian listed food and beverages companies with a positive coefficient. This implies that

large Nigerian listed food and beverages firms employed more debt in their financing mix than small ones. This result may be as a result of the fact that large and more diversified firms face lower default risk when they employed debt in their financial structure. In addition, another reason that may have informed this positive association is that large firms have better reputation in debt market, hence, face lower debt related agency costs; and large firms can also borrow under better condition. This finding is similar to the findings of Wiwattanakantang (1999), Salawu (2007), and Wellage and Locke (2012). The result is however contrary to those of Mazur (2007), Anifowose (2010), and Shehu (2012) who finds an inverse significant impact of firm size on leverage.

The regression result in respect of association between profitability and leverage shows that profitability is inversely related with leverage but significant at 1% level of significance. This result reveals that the higher the firms make profit, the lower they employ debt in their financing mix. The explanation for this negative association may be that financial managers of these firms may be preferred to make use of retained earnings in financing investment which is a cheaper source of finance than external financing in the form of debt or equity.

Also, bankruptcy costs associated with debt financing may also prompt financial managers of these firms to prefer the use of retained earnings in financing their investment than to go for debt finance. The finding confirms the prediction of pecking order hypothesis which posits that higher earnings or profitability results in less book leverage. Firms prefer raising capital first from retain earnings when financing new investment or projects. This also confirms the argument by Bevan and Danbolt (2002) who noted that leverage-profitability negative relationship is the most pervasive regularity in capital structure research. This finding is consistent with those of Bevan & Danbolt (2002), Rafiq et al. (2008) and Saheel and Muhammed (2010). However, the result contradicts that of Shehu (2012) who finds a significant positive relationship between leverage and profitability.

In addition, the regression result reveals that asset tangibility as measured by the proportion of tangible assets to total assets is positively related and statistically significant at 1% level of significance with leverage. Thus, firms in the Nigerian listed food and beverages sector with high proportion of tangible assets employ more debt in their financial structure. One of the explanations for this positive relationship is that entities with large amount of tangible assets can borrow at a cheaper rate of interest in the debt market by providing security of these tangible assets to lenders. Therefore, financial managers of the sampled firms may have taken the opportunity of low interest rate in the presence of high tangible assets and employ more debt in their financing mix. This finding confirms the argument by Frank & Goyal (2009), who maintained that tangible assets are easier to collateralize and they suffer a smaller loss of value when firms go into distress. Thus, suggesting that firms with more tangible assets will employ more debt in their capital structure.

The regression result in respect of the association between non debt tax shields and leverage reveals that non debt tax shields has no significant effect on the leverage of listed food and beverages firms in Nigeria. The result from Table 4.3 shows F-statistics of 13.19 which is significant at 1% level of significance. The statistic also suggests the fitness of the model. The adjusted R-square of 0.4068 shows that the firm characteristics explain about 41% variation in the dependent variable during the period under investigation.

Conclusion and Recommendation

In conclusion, the study has provided empirical evidence on the importance of five firm attributes: growth, size, profitability, tangibility and non-debt tax shields in explaining and predicting the leverage of listed food and beverages firms of Nigeria during the period under study. It is therefore recommended that corporate financial managers of these firms should be wary of increasing debt finance in their financial structure by only taken into cognizance of these firm specific attributes. Finance managers should carefully consider the costs of taking on more debt and painstakingly strike a balance between these costs that are associated with debt financing and the eventual benefits thereof.

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