Corporate Financial Structure of Nonfinancial Quoted Companies in Nigeria

Wakeel Atanda Isola
University of Lagos, Nigeria
wisola@unilag.edu.ng

Lateef Olawale Akanni
University of Lagos, Nigeria
akanniolat@yahoo.com

Corporate financing decision of firms has remained a debatable issue in both corporate and academic discussions. The present study aims to investigate the factors responsible for the financing decision of firms in Nigeria. To achieve this, 63 nonfinancial firms listed on the Nigerian stock exchange were selected based on data availability for the period of 2001 to 2010. Financial firms were excluded because of their similar regulatory framework and in order to ease the comparability of results. While most studies focused on debt-ratio as a measure of leverage, the present study uses the ratio of total debt and total assets. The empirical findings from the static panel regression analysis confirms that Nigerian firms tends toward internal financing through retained earnings, equity and other short term funds, against long term financing majorly through debts and other long term loans. One factor that could be said to account for this decision is the ill developed bond market in the country as well as the accessibility of firms to long term finances from the existing sources that is marred with high interest rates and huge collaterals.

Key Words: corporate finance, leverage, profitability
JEL Classification: G32, L25

Introduction

Modern corporate finance literature have provided answers to the factors responsible for the emergence of firms choice of capital structure as well as factors considered when changing their pattern of financing. Changes in corporate finance pattern by firms result in adjustments in the position of existing fund providers, equity and debt and thus changes in the reactions of these capital holders. Accordingly, company financing decisions involve a wide range of policy issues. At the macro level, they have implications for capital market development, stock and securities price determination, interest rate determination and regulation and at the micro

level, they have implications for corporate governance, organizational development and structure (Green, Murinde, and Moore, 2012; Isola, 2012). In addition, the choice of pattern of capital largely affects the sustainability of financial flows into countries, most especially developing countries, as these funds flow depends heavily on the heath and viability of the corporate sector.

Vast amount of literature that describe and attempt to explain observed capital structure choices are carried out on firms in developed countries. However, in developing countries capital structure of firms may be different from what is obtained in developed countries for several reasons. According to Demirguc-Kunt and Maksimovic (1999), four broad reasons exist why in developing countries capital structures of firms may differ. First, differences in the level of economic and financial market development in terms of per capita income, capital market development, sophistication of financial intermediaries and corporate ability to raise external funds. Second, difference in institution in terms of legal and corporate regulatory framework, pricing regulations and investors' protection. Third, smaller firm sizes observed in developing countries, and finally the differential tax treatment of debt and equity.

The framework for discussing firms' choice of capital structure in developing countries has been explained in empirical literature from two broad determinants, agency theory explanation and the tax system. From the agency theory view, it addresses the distinct conflicts of interests that arise between investors holding different classes of securities. The conflicts arise because holders of one class of investors (typically equity-holders) act as agents for other investors and take decisions that affect the value of the firm as a whole. As a result, these investors have an incentive to engage in opportunistic behaviour that increases their payoffs at the expense of other classes of investors (typically debt-holders) and the firm as a whole (managers and other stakeholders). The second important determinant of capital structure is the tax system. Since firms' financing choice affect their tax liabilities because the total amount of tax liability of their investors both personal and at corporate levels, differs according to the proportion of equity and debt securities. This differential treatment of investment returns induces investors' preferences for holding equity or debt securities and firms attempt to satisfy these preferences by optimally altering their capital structure (Demirguc-Kunt and Maksimovic 1999)

Against this background, this study seeks to examine the corporate financial behaviour of quoted firms in Nigeria. The study by Isola (2012)

was conducted on textile firms in Nigeria using a balance sheet approach. Essentially, this study seeks to extend this work by considering all non-financial quoted firms in Nigeria. It investigates the gearing and leverage ratio of firms in the non-financial sector as a measure of financial risk and the factors that determine this ratio. The rest of the paper is structured as follow: the second section presents a review of theoretical literature while the third section presents empirical literature review. The fourth discusses the methodology and data issues as related to the study, while the fifth section presents the estimation results and discussions. The last section concludes the study.

Theoretical Review

The growth of the firm either through the expansion of existing plants or diversification into new areas involve implicit financing decision to raise the needed funds (Isola 2012). Koutsoyiannis (1982) classified financing sources into internal and external sources. However, three notable sources of funds are available to firms in financing their corporate activities namely, equity, debt and retained earnings. Theoretical arguments on the factors that determine the choice among these sources of fund dates back to the pioneer work of Modigliani and Miller (1958) often referred to as irrelevance proposition. The position of these scholars is that in the presence of some assumptions, firms' structure of capital does not affect the firms' market value. Among others, some of these assumptions include perfect capital market, no transaction costs, homogeneous expectation about future earnings by investors, and no corporate tax. However, a number of these assumptions were not applicable in reality and were relaxed in subsequent studies and the consequences discussed among which include the relevance of firms' capital structure to firms' value.

The social and private costs of an agent's action due to incomplete alignment of the agent's and owner's interests were brought to attention by the seminar contributions of Jensen and Meckling (1976) on agency costs. A significant fraction of the effort of researchers have since been devoted to models in which capital structure is determined by agency costs, that is, costs due to conflicts of interest among actors in the firm – managers, shareholders and debtholders – based on equity and debt issue. One of these conflicts is the shareholder-manager conflicts, which stems from the separation of ownership and control. Contrary to the shareholder's interest of firm value maximization, managers prefer to exert less effort

and have greater perquisite levels, such as luxuriant office and corporate jets, etc. (Jensen and Meckling 1976). In this case, increasing the managers' equity holdings will help to align the interests of shareholders and managers. On the other hand, keeping managers equity investment constant, increasing the debt level also helps to mitigate the loss of conflicts between shareholders and managers. Essentially, debt forces managers to pay out cash and consequently reduces the ability of managers to spend on perquisites.

Another form of agency conflict is the shareholder and debtholder conflict. The elementary phenomenon of this conflict is that the shareholders or their representatives make decision transferring wealth from bond holders to shareholders (Harris and Raviv 1990). Certainly, the bondholders being aware of the situations in which this wealth expropriation may occur, therefore, will demand a higher return on their bonds or debts. One way to minimize these conflicts is that firms with high growth opportunities should have lower leverage and use a greater amount of long-term debt than firms use in more mature industries (Niu 2008). The conflicts can also be mitigated by adjusting the properties of the debt contracts, for example, the adjustment can be done by including covenants such as adding limits on the dividends payment or setting restrictions on the disposition of assets as discussed by Smith and Warner (1979). Alternatively, debt can be secured by collateralization of tangible assets in the debt contracts that are thoroughly discussed in Stulz and Johnson (1985). The issue of convertible debt or debt with warrants can serve as another way of mitigating the conflicts as shown by Jensen and Meckling (1976) or Green (1984), because convertible debt will have lower agency costs than plain debt.

The Pecking-Order theory proposed by Myers and Majluf (1984) is based on the hypothesis that financing flows is hierarchical, and that firms prefer internal over external financing and debt over equity owing to the asymmetry of information possessed by the inside managers. The nature of information asymmetry in this case is that managers or insiders know more about the company's prospects, risks and values than the knowledge outside investors possess. Hence, as a result information asymmetry between insiders and investors, if firms need to finance the new projects through equity issuance, the equity may be under-priced by the market. Also, further to the assumption that managers acts to protect the interests of existing shareholders, the managers may as well forgo the positive net present value (NPV) project if it would require the issue of new equity,

since by this issuance, it would give much of the project's value to the new shareholders at the expense of the old (Myers and Majluf 1984).

Numerous empirical studies have been carried out to analyse the validity of each and all of the above theories, however no unique consensus exists among researchers as to which theory best explains the composition of firms' capital structure. This reason may be attributed to the fact that these theories differ in their emphasis and coverage. The next section presents a review of some of the empirical literature on the determinants of corporate capital structure.

Empirical Literature Review

This section reviews some empirical studies on the determinants of corporate financial structure. Many studies exist on corporate capital decisions, however few studies shed light on the common determinants of capital structure for different companies (Christian et al. 2012). On the relationship between these factors and companies' capital structure, Harris and Raviv (1990) summarized a number of empirical studies from US firms and suggested that 'leverage increases with fixed assets, non-debt tax shields, investment opportunities and firm size and it decreases with volatility, advertising expenditure, probability of bankruptcy, profitability and uniqueness of the product.' However, subsequent studies have updated our understanding about the determinants of capital structure.

Empirical studies yield no consistent conclusions on the direction of relationship between these determinants and capital structure, measured using leverage. Contrary to theoretical propositions, most empirical literature found that leverage is inversely related to profitability for firms in both developed and developing countries. Chang, Chean, and Liao (2014) examine the relative importance of various determinants of capital structure of Chinese listed firms from 1998 to 2009. Their findings suggest that profitability is the most prominent factor that determines capital structure of Chinese firms. Other factors such as asset growth, state influence and institutional environment also shape the capital structure decisions of these firms.

Serghiescu and Vaidean (2014) used the data of 20 Romanian firms for the period 2009–2011 and they also found that profitability, company size, tangibility of assets, liquidity and asset turnover determine capital structure of firms. Their empirical findings showed that profitability, asset tangibility and liquidity ratio negatively impact capital structure measured as total debt ratio of the firms. On the other hand, they showed

that company size and asset turnover affect firm leverage positively. The study submitted that profitability has the highest impact on choice of capital structure among all determinants.

Handoo and Sharma (2014) identified the most important determinants of capital structure of 870 listed Indian firms between 2001 and 2010. They found that factors such as profitability, growth, asset tangibility, size, cost of debt, tax rate and debt servicing capacity have significant impact on the leverage of the firm. In another study by Chang, Chean, and Liao (2008), they used all firms contained in the Annual Compustat Industrial files between 1988 and 2003. They found that growth is the most important determinant of capital structure choice. This is hierarchically followed by profitability, collateral value, volatility, non-debt tax shield and firm uniqueness.

Volatility or business risk is another important determinant of corporate financial structure that has been empirically evaluated (Huang and Song 2002; Halov, Heider, and John 2009). Volatility represents a firm's probability of financial distress and it is generally expected to have inverse relationship with leverage. Halov, Heider, and John (2009) studied a large unbalanced panel of all firms in the CRSP-Compustat database from 1971–2001. They found that volatility is an important factor in explaining capital structure choices of firms. They showed that the effects are over and above the traditional determinants of capital structure such as profitability, size, tangibility of assets and risk level.

Delcoure (2007) investigated whether capital structure determinants in transitional economies support or differ from the traditional capital theory determinants of capital structure in western economies. Their findings support the traditional capital structure theories. However, they further showed that capital structure in transitional economies are explained by institutional factors like financial constraints in banking system, disparity in legal systems governing firms' operations, shareholders and bondholders rights protection, development of the equity and bond market and corporate governance. Joeveer (2013) studied the firm, country and macroeconomic determinants of capital structure in transition economies. He found that firm-specific factors are the main determinants of variations in leverage for listed and large unlisted companies.

Based on the foregoing discussions on the findings of recent empirical studies on the determinants of capital structure. We seek to examine the firm specific factors that determine the capital structure of listed firms in Nigeria. However, the constraint of data availability restricts the con-

TABLE 1 Summary of the Determinants of Capital Structure

Determinants	Definitions	Theoretical predicted signs	Major empirical studies result
Profitability (ROA)	Earnings before interest and tax divided by total assets	Positive/negative	Negative
Size (SIZE)	Natural logarithm of sales	Positive/negative	Positive
Tangibility (TANG)	Fixed assets divided by total assets	Positive	Positive
Growth Opportunities (GRWT)	Growth rate of sales	Negative	Negative
Volatility (VLTY)	Standard deviation of earnings before interest and tax	Positive/negative	Negative

NOTES Adapted from Huang and Song (2002).

sidered variables to profitability, firm's size, asset tangibility, growth opportunities and volatility. Table 1 presents the variables, their respective definitions as used in this study, the theoretical a priori predicted signs and the result from major empirical studies.

Methodology, Data and Sample

Understanding how companies finance their activities is predominantly a matter of measurement: to document the ways in which different companies at different times and in different institutional environments have financed their operations; and to identify possible implications of these financing patterns. Empirical studies on company financial pattern have documented some fundamental issues encountered when taking methodological decisions. According to Christopher, Murinde, and Suppakitjarak (2003), there are two interlinked strands. The first issue concerns the data source: whether to use the aggregate company sector statistics that form the basis of the national accounts, or individual company accounts data from company reports. On the other hand, the second question is conceptual and it relates to whether to use balance sheets (stocks of assets and liabilities) or flows of funds (sources and uses, or cash flows) to measure financing.

Another issue that arises from the second strand is on the whether to use market values or book values in calculating balance sheet data. In de-

ciding on answers to these questions, the central issues to consider are the purpose to which these data are to be used. The strengths and weaknesses of different methodological issues were extensively discussed by Christopher, Murinde, and Suppakitjarak (2003).

Despite several strengths and weaknesses of the different methodologies available in the corporate financial structure determinants literature, it is strongly believed that much and more can be learnt from company accounts and from their balance sheets, which inform our choice of using company account. Another motivation for our choice of company accounts is the availability of such data, as public quoted companies are statutorily required to publish their financial reports and accounts on annual basis.

In order to evaluate both theoretical and empirical submissions on the determinants of capital structure as reviewed in the previous section, regression analysis is adopted. The Ordinary Least Squares (OLS) regression technique is sought to evaluate how each of these factors determine corporate financing structure of firms in Nigeria. However, because of the cross-section and time dimension features of the data, the static panel regression analysis, which comprises the fixed and random effect model, in addition to the pooled OLS, is used for the estimation.

Following the empirical discussion in the previous section, the model to be estimated in panel econometric form could be specified as:

$$\begin{aligned} \text{LEV}_{(i,t)} = {} & \alpha + \beta_1 \text{ROA}_{(i,t)} + \beta_2 \text{SIZE}_{(i,t)} + \beta_3 \text{GRWT}_{(i,t)} \\ & + \beta_4 \text{VLTY}_{(i,t)} + \beta_5 \text{TANG}_{(i,t)} + \varepsilon_{(i,t)}. \end{aligned} \tag{1}$$

The Dependent variable, leverage (LEV), is measured in this study following Welch (2011) as the ratio of total debt and total assets. ROA is defined as the ratio of firm's earnings before interest and tax divided by total assets; SIZE is the natural logarithm of sales; GRWT is defined and measured as growth rate of firm's sales; VLTY is the standard deviation of earnings before interest and tax, and TANG is fixed assets divided by total assets. *i* represents the cross-section identifier (that is, the firm) and *t* represents the time identifier (that is the sample period 2001 to 2010) while ε is the error term.

The financial reports and accounts of firms in the financial sector (banks, insurance and equity trusts) have a striking different structure from firms from the nonfinancial sector (Chen 2004). Financial firms are characterized by similar regulatory framework, therefore in order to

TABLE 2 Descriptive Statistics

Variable	(1)	(2)	(3)	(4)	(6)	(6)
Leverage	0.449	0.021	0.520	1.160	4.170	34.100
ROA	0.058	0.024	0.604	10.400	−6.860	72.600
Growth	14.300	0.072	1.810	0.127	0.038	2.700
Size	0.133	0.018	0.447	3.37	−0.199	14.200
Volatility	0.138	0.017	0.416	3.020	8.960	100.000
Tangibility	0.744	0.026	0.665	0.893	7.690	88.500

NOTES Column headings are as follows: (1) mean, (2) standard error of the mean, (3) standard deviation, (4) coefficient of variation, (5) skewness, (6) kurtosis.

ease the comparability of results, only nonfinancial quoted firms are included in the sample. The basic source of our data is the annual financial report and accounts of each of nonfinancial firms quoted on the floor of the Nigerian Stock Exchange (NSE). 63 firms were included in the sample as a result the availability of the data needed for the empirical analysis. In addition, the sample period captured is between 2001 and 2010. This selection is based on only firms with complete information related to the variables of the specified model.

Results and Discussions

This section presents the estimated results based on the empirical model specified earlier as well as the discussion of the results. The section starts with the descriptive analysis of the variables presented in table 2. The table shows an average value of leverage at 45% which indicates that the movement of debt to asset ratio is around 0.45. In addition, there is a considerable variation in the leverage ratio with the coefficient of variation around 1.16 indicating a substantial variation. The ROA shows an average value of 5.8% with the coefficient of variation at 10.4. Other variables in the table also indicate considerably interesting descriptive results. The skewness and kurtosis used to measure the location and variability of the data set show that all the data are positively skewed except ROA and Size.

Table 3 shows the correlation matrix for the variables. The correlation matrix shows the correlation between each pair of the variables. The result shows a negative correlation between leverage and each of ROA, size and growth, although the negative correlation between growth and leverage is negligible. Al-Sakaran (2001) in his study confirms the negative correlation between profitability and debt ratio is also confirmed. On

TABLE 3 Correlation Matrix

Variable	(1)	(2)	(3)	(4)	(6)	(6)
(1) Leverage	1					
(2) ROA	−0.4778	1				
(3) Size	−0.1602	0.2767	1			
(4) Growth	−0.0652	0.1252	0.0766	1		
(5) Tangibility	0.1191	−0.3623	−0.0413	−0.0368	1	
(6) Volatility	0.2276	−0.5658	−0.2077	−0.1000	0.2985	1

TABLE 4 Panel Regression Result

Variables	Pooled OLS	Fixed Effect	Random Effect
Constant	0.6116 (0.1318)**	2.1440 (0.6299)**	1.1145 (0.3409)**
ROA	−0.0149 (0.0194)	−0.2597 (0.0968)**	−0.0995 (0.0477)*
Size	−0.0036 (0.0562)	0.0516 (0.0503)	0.0229 (0.0406)
Growth	−0.0683 (0.0706)	−0.0028 (0.0656)	−0.0122 (0.0604)
Volatility	−0.0411 (0.0285)	0.0080 (0.0281)	0.0004 (0.0300)
Tangibility	−0.4476 (0.0657)**	−0.3349 (0.0786)**	−0.3577 (0.0814)**
R^2	0.2343	0.2225	–
Number of observations	630	630	630

NOTES Standard errors are shown in parenthesis. * $p < 0.05$. ** $p < 0.01$.

the other hand, tangibility and volatility both exhibits positive correlation with leverage.

The result of the Hausman test carried out returns a value of –13.00. However, the test warns that the data used in estimation fails to meet the asymptotic assumptions of Hausman test. Hence, we may not conclude that the random effect is better than the fixed effect. Therefore, the test is inconclusive. Hence, the pooled OLS, fixed effect and random effect panel estimation were carried out in the empirical estimation and the results of each of the panel regression models are presented in table 4. The signs of the explanatory variables in each of the estimated model are consistent, except for size and volatility which are negative in the pooled OLS estimation but positive for both fixed and random effects model.

Generally, the results of the regressions are consistent with theoretical predictions and empirical results of existing studies. Profitability measured as ROA is negatively related to leverage and statistically significant. As firms profitability increase, their leverage ratio reduces. This finding

is consistent with the empirical results of Wiwattanakantang (1999) and Booth et al., (2001).

On the relationship between leverage and size, the estimation shows a positive coefficient. If size is defined to be an inverse proxy for the probability of bankruptcy, the positive and significant coefficient show that it should have less or no effect on the firms' leverage. This positive relationship is confirmed by most empirical studies. Examples include Rajan and Zingales (1995) and Huang and Song (2002).

Contrary to theoretical predictions, tangibility is inversely related to leverage. Although the coefficient is not statistically significant, one reason for such negative relationship may be that the non-debt part of total liability (especially short term liabilities) of a firm does not need collaterals. This result is in line with the findings of Rajan and Zingales (1995), Huang and Song (2002) and Sakatan (2010). The variable of growth was found to be negatively related, although not statistically significant, to leverage which indicates that sampled firms in the course of their growth used more equity financing than debt financing. In other words, growing firms need huge cash flows to sustain their growth and enhance further expansion. However, because of the economic climate of the country in terms of non-availability of loanable funds and high interest rates charged by financial institutions, most firms result to internal financing as their major source of capital.

The coefficient for volatility recorded in both the fixed and random effects model are very low and statistically insignificant. Thus, indicating that the relevance of business risk on the financing structure of Nigerian firms is not confirmed in the models. This result is also consistent with the findings of Sakatan (2010) in the case of Saudi Arabian firms.

Conclusion

This study examines the forces that determine the capital structure of firms in Nigeria and it shows that these forces are quite similar to what obtained in other countries based on empirical investigations. Although the economic climate of Nigeria exhibits a less robust regulatory and legal framework, the factors that affect financial structure are also similar to the rest of the world.

The empirical findings of this study shows that Nigerian firms tend toward internal financing through retained earnings, equity and other short term loans, against long term financing majorly through debts and other long term loans. One factor that can be said to account for this

decision is the ill developed bond market in the country. In addition, the accessibility of firms to long term finances from the existing sources is marred with heavy cost through high interest rates and huge collaterals.

Conclusively, the results of this study have presented some further insights on the determinants of corporate financing decisions of Nigerian firms. The study shows that firms in the Nigerian capital market prefer internal to external source of finance. However, further empirical investigation in needed to reflect the macroeconomic and institutional influence on the capital choice of Nigerian firms. In addition, a larger and more comprehensive list of firms is needed for a more detailed study.

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