

Micro and Macro Prudential Determinants of Capital Structure of Quoted Firms: A Multi-Variate Evidence from Nigeria

¹Okoro, Charles Ugochukwu, ²Davies, Stanley Diepiriye,
³Charles, Fortune Bella and ⁴Awheme, Blessing Ewoma

^{1&2}Department of Accountancy, School of Management Science, Ken Saro-Wiwa Polytechnic, Bori,
Rivers State, Nigeria, E-mail: lucky.anyike@yahoo.com

³Department of Banking and Finance, Faculty of Management Science, Imo State University, Owerri, Imo State, Nigeria

⁴Department of Accountancy, Faculty of Management Science, Imo State University, Owerri, Imo State, Nigeria.

Keywords:

Micro, Macro, Prudential
Determinants, Capital Structure,
Quoted Firms.

Received: 10 February 2021

Revised: 17 February 2021

Accepted: 10 March 2021

Publication: 3 May 2021

Abstract: This paper examined factors that determine capital structure of selected quoted manufacturing firms in Nigeria. The objective was to examine internal and external factors that determine capital structure of quoted firms in Nigeria. Secondary data was sourced from Central bank of Nigeria Statistical Bulletin, Stock Exchange Fact-book and annual reports of quoted firms in the Nigerian Stock Exchange (NSC). Equity capital and debt capital was modeled as the function of profitability, company size, retained earnings, growth opportunity, liquidity, financial sector development, real gross domestic products and inflation rate. Ordinary least square method was used as data analysis method. The study found that profitability and growth opportunity have negative effect on equity capital while company size, retained earnings, liquidity, financial sector development, real gross domestic product and inflation rate have positive and significant relationship with equity capital. The study also found that profitability and liquidity have negative effect on debt capital while company size, retained earnings, growth opportunity financial sector development, real gross domestic products and inflation rate have positive and significant effect on debt capital. The study concludes that internal and external factors significantly determine capital structure of quoted firms and recommend (among others) that system operators and corporate executives should endeavor to formulate policies that will leverage the negative effect on internal and external factors on capital structure of quoted firms.

Introduction

There are two major source of capital to every corporate organization. These are the equity capital and debt capital. The combination of these sources of capital makes up the capital structure of the firm. Determining the optimal capital structure of the firm is a critical finance management function. In the invest decision function, it has significant effect to the corporate performance of the firm. Capital structure is defined as the means by which an organization

is financed. It is the company's proportion of short and long-term debt to equity capital. Capital structure involves the weighing of the pros and cons of various sources of finance and selects the most advantageous keeping in view the target capital. It is continuous decision that is taken whenever a firm needs additional finance. Determining the optimal capital structure of the firm is a critical finance management function. Like the investment decision function, it has significant and two way effect to the corporate performance of the firm which is negative and positive effects. The two sources of capital to the organization form the capital structure of the firm.

Conceptually capital structure is defined as the means by which an organization is financed. It is the company's proportion of short and long-term debt to equity capital. Decision on capital structure involves the evaluation of the advantages and disadvantages of the both source of capital and the combination of both sources of capital (Owolabi and Inyang, 2012). As a component of firm's long-term finance policy, capital structure has been an issue of great concern in the corporate finance. This is due to the fact that capital structure affects the cost and availability of capital, firm investment position and the overall performance (Muritala, 2012).

As a an organization financial policy capital structure according to Modigliani and Miller (1958) policy involved a strategies risk expected return trade off which takes into consideration the risk factor in the business, tax positions and financial flexibility (Panddy, 2005). Despite the irrelevant theory of capital structure by Modigliani and Miller (1958) the financial implication of capital structure cannot be underestimated. Financing decision is reactive and evolved in response to the operating decision (Panddy, 2005). Unplanned capital structure can prosper a firm in the short-run but face difficulties of raising funds to finance their activities in the long-run. It may also lead to failure of the firm to economize the use of their funds which can impact negatively to the corporate profitability performance of the firm.

Nigerian firms like other countries have two major sources of capital which are the equity capital and the debt capital. These two components make the capital structure of the firm that can affect the performance of the firm negatively or positively. Like the dividend policy theories, the assumptions of capital structure theories are based on the well developed and structured financial environments as opposed to an emerging financial environment such as Nigeria. The argument against capital structure and the performance of the firm brought in the field of finance a point of departure among finance scholars. For instance

the assumption of the perfect capital market compared with other emerging capital market that is characterized with insider dealings and other insider abuse that can affect the source of capital to the firm such as factors in the business environment. However, the agency theory as proposed by Micnon (1989) noted that the management which is separated from the ownership of the firm might have an interest in the capital structure of the firm that conflict the objective of the firm.

Literature Review

Components of a Firm's Capital Structure

The various components of a firm's capital structure according to Inanga and Ajayi (1999) may be classified into equity capital, preference capital and long-term loan (debt) capital.

Equity Capital

Pandey (1999) defined equity capital as including share-capital, share premium, reserves and surpluses (retained earnings). Typically, equity capital consists of two types which include: contributed capital, which is the money that was originally invested in the business in exchange for shares of stock or ownership and retained earnings, which represents profits from past years that have been kept by the company and used to strengthen the Balance Sheet or fund growth, acquisitions, or expansion. The cost of equity capital of a firm using the dividend growth basis can be expressed as:

$$K_e = d_0 (1 + g) / P_e + g \quad (1)$$

(1) Where

K_e equals the cost of equity capital;

d_0 , the current dividend per share;

P_e , the Ex-dividend market price per share and

g , the expected constant annual growth rate in earnings and dividend per share.

Preference Capital

The preference share capital is a hybrid in that it combines the features of debentures and those of equity shares except the benefits. Its cost can be expressed as:

$$K_p = P_{div}/P_o \quad (2)$$

- (2) Where: K_p equals the cost of preference share;
 P_{div} , the expected preference dividend and
 P_o , the issue price of preference shares.

Debt Capital

The debt capital in a firm's capital structure refers to the long-term bonds the firm use in financing its investment decisions because the firm has years, if not decades, to come up with the principal, while paying interest only in the meantime. The cost of debt capital in the capital structure depends on the health of the firm's balance sheet. This can be expressed as:

$$K_d = Int/B_o \quad (3)$$

- (3) Where:

K_d equals the before-tax cost of debt;

Int , the interest element and B_o , the issue price of bond (debt), the after-tax cost of debt capital will be:

$K_d (1-T)$. Where: T is corporate tax rate.

Micro Determinants of Capital Structure

The internal factors are selected based on past empirical studies on determinants of capital ratio of firms in general and of corporate specifically, including collateral, dividend, size, asset risk, M/B and profit.

Collateral

From the perspective of trade-off theory and agency theory, tangible assets as collateral help reduce the financial distress costs and agency costs of debt, hence increase the leverage capacity for firms. Such anticipation of positive relationship between collateral and leverage ratio has been confirmed consistently in studies by Rajan and Zingales (1995), Titman and Wessels (1988), Aggarwal and Jamdee (2003) and Frank and Goyal (2005), etc. The opposite conclusion of inverse relationship between collateral and capital structure was made by Pandey (2001), Correa *et al.* (2007) Mazur (2007), Mitton (2008), Ullah and Nishat (2008). Gropp and Heider (2007) and Octavia and Brown (2010) (Herein after also referred to as two previous papers on corporate capital structure interchangeably) have opposite conclusion on this, where Gropp and Heider

only a negative relation between collateral and leverage whilst Octavia and Brown concluded a statistical insignificance.

Dividend Payout

The bankruptcy costs theory pleads for adverse relation between the dividend payout ratio and debt level in capital structure. The low dividend payout ratio means increase in the equity base for debt capital and low probability of going into liquidation. As a result of low probability of bankruptcy, the bankruptcy cost is low. According to the bankruptcy cost theory, the low bankruptcy cost implies the high level of debt in the capital structure. But the pecking order theory shows the positive relation between debt level and dividend payout ratio Titman and Wessels (1988). According to this theory, management prefers the internal financing to external one. Instead of distributing the high dividend, and meeting the financial need from debt capital, management retains the earnings. Hence, the lower dividend payout ratio means the lower level of debt in capital structure.

A dividend-paying company which is large and mature can rely on its reputation to raise external capital, hence would reduce borrowing. Frank and Goyal (2005) finds this negative relation between dividend and leverage. According to Gropp and Heider (2007), corporate organizations face a higher cost of issuing equity due to asymmetric information. Those firms that indulge in paying dividends are expected to face lower cost of issuing equity as they are well known to the outsiders, preferring equity financing. They also concluded a negative relationship between dividend and leverage ratio, while Octavia and Brown (2010) could not conclude due to mixed results when examining book and market leverage.

Size

In accordance to trade-off theory, large firms with lower bankruptcy costs and more stable cash flow would have higher capacity for debt financing. This positive relationship between size and leverage is also concluded from researches by Titman and Wessels (1988), Booth et al. (2001), Aggarwal and Jamdee (2003) and Frank and Goyal (2005). The contradictory conclusion of inverse relationship comes from information asymmetry problem. Rajan and Zingales (1995) argues that large firms are usually required to disclose more information to the public, increasing its transparency, reducing information asymmetry costs hence would favor equity financing. Chen (2004) further explains this by referring

to large companies' reputation and attraction to equity market. Two previous papers on banks' capital structure had the same conclusion as the first argument of a positive relation.

Asset Risk

Business Risk In banking, one of the most important determinants of capital is related to the risk that firms have taken. Legal regulations relate the level of capital that firms must maintain with the level of risks that they carry. The main reason of this is that capital is viewed as a shield against unexpected losses and bankruptcy. Both agency and bankruptcy cost theories suggest the negative relation between the capital structure and business risk. The bankruptcy cost theory contends that the less stable earnings of the enterprises, the greater is the chance of business failure and the greater will be the weight of bankruptcy costs on enterprise financing decisions. Similarly, as the probability of bankruptcy increases, the agency problems related to debt become more aggravating. Thus, this theory suggests that as business risk increases, the debt level in capital structure of the enterprises should decrease (Taggart 1985). Studies carried out in western countries during 1980s show the contradictory evidence in this regard (Martin et al, 1988). The studies carried out in India and Nepal also show the contradictory evidence on the relation between the risk and debt level. Sharma (1983) and Chamoli (1985) show the evidence against, and Garg (1988) and Paudel (1994) do for the relation consistent with the bankruptcy and agency cost theories.

Increasing asset risk increases the default probability, hence would reduce the firm's preference in borrowing as suggested by trade-off theory. Such negative correlation between risk and leverage was also concluded in Titman and Wessels (1988), Harris and Raviv (1991), Pandey (2001) and Ullah and Nishat (2008), emphasizing that risky firms will use less debt. Besides, given its very unique characteristics, firms are specifically controlled by the statutory minimum capital requirement set by regulatory boards. The relation between asset risk and firms capital structure is expected to be significant, for which two previous papers on corporate capital structure also had the same conclusion of a negative relation.

Market to Book Value

From the viewpoint of pecking order theory, a firm with high M/B ratio has high financial capacity from its operation, thus would rely more on its internal

capital not debt. According to market timing theory, believing its share price is high, the firm's management would issue shares if in need of capital. These arguments support an inverse relationship between M/B and leverage, which has also been concluded in Rajan and Zingales (1995), Aggarwal and Jamdee (2003) and Frank and Goyal (2005). On the other hand, if based on trade-off theory for argument, high M/B implies a profitable firm which can rely more on debts without too much concern on its solvency. Therefore we also have reasons to expect a positive correlation. Gropp and Heider (2007) indicates a negative correlation while Octavia and Brown (2010) has mixed conclusion in terms of signs of effects when examining book and market leverage.

Profit

Profitability The static trade-off hypothesis pleads for the low level of debt capital of risky firms (Myers 1984). The higher profitability of firms implies higher debt capacity and less risky to the debt holders. So, as per this theory, capital structure and profitability are positively associated. But pecking order theory suggests that this relation is negative. Since, as stated earlier, firm prefers internal financing and follows the sticky dividend policy. If the internal funds are not enough to finance financial requirements of the firm, it prefers debt financing to equity financing (Myers 1984). Thus, the higher profitability of the enterprise implies the internal financing of investment and less reliance on debt financing, Aremu, Ekpo and Mustapha (2013). Most of the empirical studies support the pecking order theory. The studies of Titman and Wessels (1988), Kester (1986), Friend and Hasbrouck (1989), Friend and Lang (1988), Gonedes *et al* (1988) show that negative relationship exist between the level of debt in capital structure and profitability. Indian and Nepalese studies also show the same evidence as foreign studies do (Baral, 1996). Only a few studies show the evidence in favor of static trade-off hypothesis contention.

Implied from M&M theorem (1963) when taking corporate taxes into account, firms would prefer debt given tax shield benefits. Further with static trade-off theory, provided lesser chance of bankruptcy, a profitable firm would carry on more debt compared to a less profit-generating one. Additionally, agency theory suggests that a profitable firm would increase debt to mitigate the agency costs of managerial discretion. All of these refer a positive association between profitability and leverage. Alternatively, pecking order theory emphasizes that a profit firm will prioritize to use its retained earnings first, not debts. This implies a negative relationship, which is consistent with many previous studies like Rajan

and Zingales (1995), Booth et al (2001), Aggarwal and Jamdee (2003) and Frank and Goyal (2005). Besides, Chen (2004) further justifies the negative relationship as a mitigation tool for the underinvestment problem and mispricing of new projects. This is also result of two previous papers on banks' capital structure.

Tangibility

Due to the conflict of interest between debt providers and shareholders (Jensen and Meckling, 1976), lenders face risk of adverse selection and moral hazard. Consequently, lenders may demand security, and collateral value (proxied by the ratio of fixed to total assets) may be a major determinant of the level of debt finance available to companies (Scott (1977), Stiglitz and Weiss (1981), Williamson (1988) and Harris and Raviv (1990)). The degree to which firms' assets are tangible and generic should result in the firm having a greater liquidation value. Capital intensive companies will relatively employ more debt (Myers, 1977), as pledging the assets as collateral (Myers, 1977; Harris and Raviv, 1991) or arranging so that a fix charge is directly placed to particular tangible assets of the firm. Bank financing will depend upon whether the lending can be secured by tangible assets (Storey, 1994; Berger and Udell, 1998).

Macro factors that determines capital structure

GDP growth

During economic downturn, due to bad performance and increase in bankruptcy costs, firms would hesitate to borrow. Reversely, companies would borrow more in good economic condition given more investment opportunities. This argument of positive association between GDP growth and leverage is supported by trade-off theory and matches with findings in previous researches by Booth *et al.* (2001), Deesomsak *et al.* (2004), de Jong *et al.* (2008), Mitton (2008), Bas *et al.* (2009), Nuño *et al.* (2013), etc. Gropp and Heider (2007) also conclude a positive relation, while Octavia and Brown (2010) finds GDP growth statistically insignificant in determining bank leverage.

Inflation

Inflation would add up an inflation premium to the nominal interest rate, making firms more hesitant in borrowing, thus lower leverage. This argument is also confirmed by findings of Booth *et al.* (2001) and Beck *et al.* (2008). On the contrary, as suggested by the trade-off theory, the tax advantage of debts will

increase with the level of inflation. As per market timing theory, as equity becomes undervalued in the era of inflation, managers would not issue equity but opt to go for bank loans. These two theories emphasize the positive relationship between inflation and leverage, which is consistent with conclusion by Taggart (1986), Per (2005) and Frank and Goyal (2008). Its relation with banks' capital structure is inconclusive as per Gropp and Heider (2007), where the test is significant when examining book leverage but insignificant for market leverage.

Stock market risk

Stock market risk is the potential loss due to fluctuations in the stock market of a country, depicting the volatility of an economy's stock index. This is an important measure of the financial risk prevailing in the country. High risks make bank have to increase its reserves to comply with regulations on statutory capital requirements, which results in lower leverage. On the contrary, we can also expect a positive relation. When the market experiences high volatility, investors would not be confident in investing money. In this case, they may prefer keeping their money as deposits, increasing the banks' leverage ratios. Among previous studies on bank capital structure, Octavia and Brown (2010) rejects its statistical significance, meanwhile Gropp and Heider (2007) concludes an inverse relation.

Term structure spread

Interest rates play a vital role in the banking system, directly affecting the deposits and loans of individual banks. A higher term structure spread depicts a higher risk premium banks require when lending to customers. This suggests a negative relation between term spread and firms' leverage. Regarding the debt ratio of banks, Gropp and Heider (2007) finds a positive relation indeed.

Tax rate

Tax Charge numerous empirical studies have explored the impact of taxation on corporate financing decisions in the major industrial countries. Some are concerned directly with tax policy, for example, MacKie-Mason (1990), Shum (1996) and Graham (1999). MacKie-Mason (1990) studied the tax effect on corporate financing decisions and provided evidence of substantial tax effect on the choice between debt and equity. He concluded that changes in the marginal tax rate for any firm should affect financing decisions. When already

exhausted (with loss carry forwards) or with a high probability of facing a zero tax rate, a firm with high tax shield is less likely to finance with debt. The reason is that tax shields lower the effective marginal tax rate on interest deduction. Graham (1999) concluded that in general, taxes do affect corporate financial decisions, but the magnitude of the effect is mostly not large. On the other hand, DeAngelo and Masulis (1980) show that there are other alternative tax shields such as depreciation, research and development expenses, investment deductions, etc., that could substitute the fiscal role of debt. Empirically, this substitution effect is difficult to measure, as finding an accurate proxy for tax reduction that excludes the effect of economic depreciation and expenses is tedious (Titman and Wessels, 1988).

Theoretical Framework

Trade-Off Theory

The Kraus and Litzenberger (1973) theory resulted from the debate about the Modigliani and Miller propositions. It is called the trade-off theory and can be divided into static and dynamic. The static trade-off theory is one of the most used theories in explaining the determinants of capital structure (Kraus & Litzenberger, 1973). It argues that a company will use debt instead of equity to a certain extent to maximise its enterprise value. Particular consideration is given to, the tax-shield which can be used to reduce taxable income for a given year, or delay income taxes into subsequent years. In this respect, the static trade-off theory stresses a target leverage ratio. Antoniou et al. (2008) claimed that the impact of a one-period lagged leverage ratio on the current leverage ratio is supposed to show whether or not a company has a target capital structure.

Pecking-Order Theory

The pecking-order theory was expounded by Myers and Majluf (1984) and differs from the 'trade-off theory' that it does not imply that there is a target capital structure that has to be attained and maintained. According to the theory, companies are supposed to follow a predefined financial hierarchy to finance investments, starting off with the use of internal resources thereafter debt and subsequently convertible bonds then finally equity. This order was selected on account of asymmetric information, which is the main reason for conflicts between agents and principals (Jensen & Meckling, 1976). Moreover, issuing more debt or equity signifies a willingness to share information with the outside

world, although this could lead to a loss of competitive advantage (Myers & Majluf, 1984).

Market Timing Theory

Baker and Wurgler (2002) expounded the market timing theory. It states that companies decide to change or adjust their capital structure according to market timing and market valuations. Therefore, the market timing theory explains changes to capital structure during market fluctuations more appropriately than the trade-off, pecking-order and agency-theory. In this case, Baker & Wurgler (2002) explained that for companies it is not important whether they issue more debt or equity but only which one is more highly valued on the market at a particular point in time. For example when companies go public, generally, they issue more equity compared with the phase afterwards, as IPOs are usually carried out when markets are buoyant and the intention is to benefit from the high valuation and favourable forecast for the company's performance. Additionally, in their market timing theory Baker & Wurgler (2002) maintain that, similar to the pecking order theory, there is no target capital structure and that capital structure can be seen as a cumulative result of past attempts to time the equity. They concluded that companies with low levels of leverage tend to raise equity when their market valuations are high, while highly leveraged companies seem to do the opposite and issue equity when their market valuations are relatively low.

Empirical Literature

Chen (2004) examined the determinants of capital structure of 88 Chinese-listed companies using firm-level panel data for a period from 1995–2000. Capital structure determinants are except tax shields, profitability, size, assets tangibility, growth, signaling and cost of financial distress. The study concluded a positive association for all determinants except profitability in explaining the leverage.

Hijazi and Tariq (2006) attempt to determine the capital structure of listed firms in the cement industry of Pakistan. The study took 16 of 22 firms in the cement sector, listed at the Karachi Stock Exchange for the period 1997–2001 and analyzed the data by using pooled regression in a panel data analysis. These determinates are: firm size (measured by natural log of sales), tangibility of assets, profitability and growth and further analyzed the effects on leverage. The results of the study, except for firm size, were found to be highly significant.

Frank and Goyal (2009) examine the relative importance of many factors in the capital structure decisions of publicly traded American firms from 1950 to 2003. The determinants of leverage are: median industry leverage, market-to-book assets ratio, tangibility, profits, log of assets and expected inflation. However, for book leverage, the impact of firm size, the market-to-book ratio, and the effect of inflation are not reliable.

Chhapra and Asim (2012) examine the determinants of optimal capital structuring of the 90 firms in textile sector in Pakistan of period 2005–2010. The determinants of fixed assets, profitability, size and tax were tested in associated with financial leverage. The study used some statistical methods such as correlation, regression analyses and F-value to test the fitness of overall model. The study showed a negative relationship between all independent variables financial leverage.

Khrawish and Khraiwesh (2010) tested the capital structure of 30 listed industrial companies on Amman Stock Exchange for the period 2001–2005. The capital structure was measured by two proxies: total leverage ratio and longterm debts ratio. The independent variables are size, tangibility, profitability, long-term debt and short-term debt. The study showed a significant positive association between total leverage ratio and size, tangibility, long-term debt and short-term debt and there was a significant negative association between leverage ratio and profitability of the firm.

Mokhova and Zinecker (2013) investigate the determinants on capital structure in 32 European countries. The study examines the independent variables such as size, tangibility, profitability, growth, and non-debt tax shields on the leverage. The results showed that in most countries the profitability and size have negative and significant influence on corporate capital structure. Also, the study concluded that tangibility, growth opportunities and non-debt tax shields split up: selected countries experience positive impact, another part negative.

Sbeiti (2010) investigates the determinants of capital structure for three GCC countries (Oman, Saudi Arabia and Kuwait). The study examine the impact of determinants like liquidity of firms, profitability, financial market development variables, cost of debt, growth rate, tangibility size of firms on the leverage. The results revealed that all variables except size have a negative impact while the size has a positive impact on the leverage.

Afza and Hussain (2011) tested the determinants of capital structure of the industry specific attributes of 22 automobile firms, 8 engineering firms,

and 7 cable and electrical goods firms. The debt to total assets ratio is used as a proxy for leverage and the impact of size, profitability, and tangibility of assets, cost of debt, taxes, liquidity, and nondebt tax shield is analyzed on leverage. The results showed that firms of these three sectors with good liquidity position and large depreciation allowances use retained earnings, followed by debt financing for growth and smooth operations and equity financing is considered as a last resort.

Baharuddin *et al.* (2011) examined determinants of capital structure for 22 construction companies listed in the Bursa Malaysia market during a seven-year period from 2001 to 2007. The dependent variable used is debt ratio and expressed by total debt divided by total assets while the independent variables are profitability, size, growth, and assets tangibility. The findings of the study indicated that only growth has impact on the capital structure and construction companies depend heavily on debt financing compared to equity financing for expansion and growth.

Abdul Wahab *et al.* (2012) investigate the determinants of capital structure of 10 listed Malaysian property developers during the period of 2001–2010. Variables used for the analysis include debt ratio as the dependent variable, profitability, non-debt tax shield, tangibility, growth opportunity, and liquidity as the independent variables. The study indicates that profitability and tangibility have impact on leverage of the top five developers. The study also shows that all of the independent variables are insignificant in explaining variation in leverage of the bottom five developers.

Pahuja and Sahi (2012) analyze the factors determining the capital structure of Indian companies. This analysis is grounded on agency theory and pecking order theory. The paper takes into consideration dependent variable being debt equity ratio and independent variables viz. size, growth, profitability, liquidity and tangibility. The data for a sample of 30 companies constituting Bombay Stock Exchange's SENSEX (sensitivity index) were considered for a period comprising 2008–2010. Two major determinants of capital structure are found to be growth and liquidity according to the results of the study.

Ghazouani (2013) analyzes the determinants of capital structure of 20 Tunisian firms listed in Tunis Stock Exchange for a period from 2004 to 2010. The study examined the impact of profitability, assets tangibility, risk, size, and growth rate on the leverage. The results of the study showed that the profitability and asset tangibility have impact on leverage of Tunisian firms.

Maxwell and Kehinde (2012) examine the determinants of capital structure in 110 Nigerian firms listed on the Nigerian stock exchange. The study found that size has a positive and significant impact on capital structure while age has a negative and significant influence. Tangibility, growth of a firm and profitability do not have any significant impact on the leverage of firms in Nigeria.

Qayyum (2013) examined the determinants of capital structuring of the 20 cement industry firms in Pakistan of period 2007–2009. The study examined the impact of profitability, assets tangibility, size, and growth rate on the leverage. The study indicated that except size, all other variables have significant association with leverage.

Fauzi *et al.* (2013) investigate capital structure determinants of 79 New Zealand-listed firms. Capital structure determinants re except non-debt tax shields, profitability, size, tangibility, growth; signaling, and managerial ownership. The study concluded that all independent variables, except non-debt tax shields and profitability, exhibit a significant impact on leverage.

Awan and Amin (2014) investigate which factors affect which of 68 textile firms of Pakistan listed on Karachi Stock Exchange during 2006–2012 and which type of capital structure theory does more prevail in textile sector of Pakistan. The study tested the impact of eight determinants like liquidity of firms, non-debt tax shields like depreciation, more collateral net fixed assets, earnings volatility, size of firms, net commercial trade position and firms' profits have impact on the capital structure choice on two types of leverage; total leverage and long term leverage.

AbWahab and Ramli (2014) tested the firm specific characteristics of 13 Listed Malaysian Government linked Companies (GLCs) from 1997 to 2009. The leverage was measured by two elements of leverage, book value of total debt ratio and long term debt ratio. The study showed that the tangibility and size are the most significant variables to determine the corporate financing of GLCs. Liquidity and interest rates are negatively significant with two measures of leverage.

Handoo and Sharma (2014) investigate the determinants of capital structure of 870 listed Indian firms in both private sector firms and government firms for the period 2001–2010. Ten independent variables (profitability, growth rate, size, cost of debt, tax rate, tangibility of assets, financial distress, liquidity, debt serving capacity, and age of firm) and three dependent variables (total debt ratio, long-term debt ratio, and short-term debt ratio) have been tested using

regression analysis. It has been concluded that factors such as profitability, growth, asset tangibility, size, cost of debt, tax rate, and debt serving capacity have significant impact on the leverage for those firms.

Methodology

The study is designed after correlation or regression research methodology. Here we try to see how two or more variables can relate or influence each other. This study utilized secondary data. The data is described as time series data that is information on a variable of study over the periods of one year. The data consist of time series annual data sourced from published information from stock exchange factbook, financial statement and Central Bank of Nigerian Statistical bulletin from 2000-2016.

Model Specification

$$EQC = f(PR, CS, RE, GP, LIQ, FD, RGDP, IFR) \quad (4)$$

$$DC = f(PR, CS, RE, GP, LIQ, FD, RGDP, IFR)$$

To have the estimable version of above equation, equation 1 and 2 can be rewritten to have

$$EQC_t = \alpha_0 + \beta_1 PR_{t-1} + \beta_2 CS_{t-2} + \beta_3 RE_{t-3} + \beta_4 GP_{t-4} + \beta_5 LIQ_{t-5} + \beta_6 FD_{t-6} + \beta_7 RGDP_{t-7} + \beta_8 LIQ_{t-8} + IFR + \mu_{it} \quad (6)$$

$$DC_t = \alpha_0 + \beta_1 PR_{t-1} + \beta_2 CS_{t-2} + \beta_3 RE_{t-3} + \beta_4 GP_{t-4} + \beta_5 LIQ_{t-5} + \beta_6 FD_{t-6} + \beta_7 RGDP_{t-7} + \beta_8 LIQ_{t-8} + IFR + \mu_{it} \quad (7)$$

Where

EQC = Equity Capital

DC = Debt capital

PR = Profitability

CS = Company Size measured by Log of Total Asset

GP = Growth opportunity measured by percentage of Total Sales

LIQ = Liquidity measured by Liquid Asset to Total Liability

FD = Financial Deepening measured by Broad Money supply to GDP

RGDP = Real Gross Domestic Products

IFR = Inflation Rate

- $\phi_0\alpha_0$ = Constant
 $\beta_1-\beta_5$ = Coefficients of independent variables
 μ_{it} = Error Term

Results and Discussion of Findings

Table I
Determinants of Equity Capital of Quoted Manufacturing Firms

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
PR	-3.357376	0.492655	-6.814864	0.0000
CS	1.580260	0.382403	4.132445	0.0005
RE	1.305308	0.285532	4.571493	0.0002
GP	-5.208603	1.053467	-4.944248	0.0001
LIQ	3.030553	0.949097	3.193090	0.0048
FD	1.927583	0.731417	2.635409	0.0163
RGDP	1.097561	0.451637	2.430182	0.0252
IFR	0.567270	0.164718	3.443891	0.0024
C	-0.358838	3.231500	-0.111044	0.9126
R-squared	0.895071	Mean dependent var		-0.644231
Adjusted R-squared	0.875084	S.D. dependent var		46.57770
S.E. of regression	16.46217	Akaike info criterion		8.611048
Sum squared resid	5691.062	Schwarz criterion		8.852990
Log likelihood	-106.9436	Hannan-Quinn criter.		8.680718
F-statistic	44.78363	Durbin-Watson stat		2.180417
Prob(F-statistic)	0.000000			

Source: E-view 9.0

The estimated regression model proved that internal and external factors specified in the model can explain 89.5 percent variation on equity capital of the selected manufacturing firms within the period covered in the study. The variables showed that profitability have negative and significant impact on equity capital such that a unit increase in profitability will lead to 3.3 percent decrease in equity capital, this finding is contrary to our expectation and could be blamed on poor profitability performance of the companies within the period covered in the study. Company size, retained earnings, financial sector development, liquidity, real gross domestic product and inflation rate have positive and significant relationship with equity capital of the selected manufacturing firms such that a unit increase on the variables will lead to 1.5 percent, 1.3 percent,

3.0 percent, 1.9, 1.0 percent and 0.9 percent increase on equity capital. However, growth opportunity have negative and significant impact on equity capital, this findings is contrary to our expectation and could be traced to poor performance of the companies over the period covered in the study. the positive findings of this study confirm the findings of Khrawish and Khraiwesh (2010) whose findings showed a significant positive association between total leverage ratio and size, tangibility, long-term debt and short-term debt and there was a significant negative association between leverage ratio and profitability of the firm, the findings of Mokhova and Zinecker (2013) that in most countries the profitability and size have negative and significant influence on corporate capital structure. Also, the study concluded that tangibility, growth opportunities and non-debt tax shields split up: selected countries experience positive impact, another part negative, the findings of Afza and Hussain (2011) that firms of these three sectors with good liquidity position and large depreciation allowances use retained earnings, followed by debt financing for growth and smooth operations and equity financing is considered as a last resort but contrary to the findings of Chhapra and Asim (2012) whose study showed a negative relationship between all independent variables financial leverage.

Table II
Determinants of Debt Capital of Quoted Manufacturing Firms

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
PR	-6.896033	1.108551	-6.220762	0.0000
CS	4.665946	1.021291	4.568673	0.0004
RE	3.510263	0.865694	4.054853	0.0010
GP	2.500536	0.651165	3.840094	0.0016
LIQ	-1.440517	0.168985	-8.524538	0.0000
FD	1.590776	0.432444	3.678574	0.0022
RGDP	0.794326	0.242483	3.275802	0.0051
IFR	0.251910	0.095069	2.649768	0.0182
C	0.290803	0.350108	0.830609	0.4192
R-squared	0.976117	Mean dependent var		0.698696
Adjusted R-squared	0.964972	S.D. dependent var		8.860842
S.E. of regression	1.658385	Akaike info criterion		4.117774
Sum squared resid	41.25362	Schwarz criterion		4.512728
Log likelihood	-39.35440	Hannan-Quinn criter.		4.217104
F-statistic	87.58016	Durbin-Watson stat		2.107322
Prob(F-statistic)	0.000000			

Source: E-view 9.0

The estimated regression model on factors that determines debt capital as shown in the table above found that 97 percent variation on debt capital of the manufacturing firms can be traced to variation on the independent variables. The large explain variation proved that capital structure of the quoted firms strongly depends on internal and external factors examined in the model. However, the regression coefficient found that profitability and liquidity have negative and significant effect on debt capital of the manufacturing firms. This finding is contrary to our expectation and could also be blamed to poor performance such as profitability and poor liquidity of the firms within the period covered in this study. However, company size, retained earnings, growth opportunity, financial sector development, real gross domestic product and inflation rate have positive and significant effect on the profitability of the manufacturing firms. The findings confirm our a-priori expectation. The findings of this study confirm the findings of Sbeiti (2010) that all variables except size have a negative impact while the size has a positive impact on the leverage, the findings of Baharuddinet *al.* (2011) that only growth has impact on the capital structure and construction companies depend heavily on debt financing compared to equity financing for expansion and growth, the findings of Abdul Wahabet *al.* (2012) that profitability and tangibility have impact on leverage of the top five developers. The study also shows that all of the independent variables are insignificant in explaining variation in leverage of the bottom five developers, Ghazouani (2013) that the profitability and asset tangibility have impact on leverage of Tunisian firms, the findings of Maxwell and Kehinde (2012) that size has a positive and significant impact on capital structure while age has a negative and significant influence. Tangibility, growth of a firm and profitability do not have any significant impact on the leverage of firms in Nigeria, the findings Qayyum (2013) that except size, all other variables have significant association with leverage, the findings of Fauziet *al.* (2013) that all independent variables, except non-debt tax shields and profitability, exhibit a significant impact on leverage and AbWahab and Ramli (2014) that the tangibility and size are the most significant variables to determine the corporate financing of GLCs. Liquidity and interest rates are negatively significant with two measures of leverage, the findings of Handoo and Sharma (2014) that factors such as profitability, growth, asset tangibility, size, cost of debt, tax rate, and debt serving capacity have significant impact on the leverage for those firms.

Conclusion

Factors that determine capital structure is a matter of fact to the finance management function and attract the attention of stakeholders; this is because

of the important of capital structure to the performance and the value of the firm. It requires the critical policy action to optimize debt and equity into the financing policy of the firm. Empirical evidence as reported above shows that determinant of capital structure have mixed result as some of the variable are reported positive while other are reported negative which could be trace to both internal and external factors that can influence the variables. From the findings presented in the tables above, this study concludes that internal and external factors examined have significant effect on the capital structure of the selected manufacturing firms.

The Nigeria business environment requires that finance manager need to integrate the finance management function into the corporate policy of the firm(s). Management must strive to determine the best mix of debt and equity that will maximize the returns of the firm because it is only at that point that the wealth of shareholders will be maximized. It is clear that capital structure is an important management decision as it greatly influences the owner's equity return, the owners' risks as well as the market value of the shares. It is therefore incumbent on management of a company to develop an appropriate capital structure. In doing this, all factors that are relevant to the company's capital decision should be properly analyzed and balanced.

Recommendations

1. That system operators and corporate executives should endeavor to formulate policies that will leverage the negative effect on internal and external factors on capital structure of quoted firms.
2. Management should reduce the amount of debt in their financial structure especially where there are signs of financial deterioration which is usually associated with high cost of debt. This will enhance profitability and sustenance of operations.
3. That management should use long-term debts to finance fixed tangible assets while short-term debts should be used to finance short term obligations.

References

- Abbasali, P., & Esfandir, M., (2012). The relationship between capital structure and firm performance. Evaluation measures: Evidence from the Tehran Stock Exchange. *International Journal of Business and Commerce* 1 (9), 166 – 181.
- Abdul, G. K., (2010). The relationship of capital structure decisions with firm performance: a study of the engineering sector of Pakistan. *COMSATS Institute of Information Technology*, Vehari.

- Antoniou, A., Guney, Y., & Paudyal, K., (2008). Determinants of corporate capital structure: evidence from European countries. *Working paper, University of Durham*.
- Arbabian, A. A., Safari, T., & Mehdi, G., (2009). The effects of capital structure and profitability in the listed firms in Tehran Stock Exchange. *Journal of Management Perspective*.
- Babalola Y. A. (2014). Triangulation Analysis of Capital Structure and Firms' Performance in Nigeria. *East Ukrainian National University (Vol. Dabl) 91034 Lugansk, Ukraine*
- Bassey, N. E., Aniekan J. A., Ikpe, I. K., & Udo, U. J., (2013). Analysis of the determinants of agricultural science, *1 (4), 36-47*.
- Gleason, K.C., Mathur, L.K., & Mathur, I., (2000). The inter-relationship between Culture, Capital Structure and performance: Evidence from European Retailers. *Journal of Business Research, 50(2), 185-191*.
- Gropp, R., & Heider, F., (2010). The determinants of bank capital structure. *Review of Finance, 14 (4), 587-622*.
- Gropp, R., & Florian, H., (2007). *The determinants of bank capital structures*, Review of Finance, 2007.
- Huang, G., & Song, F. M., (2006). The determinants of capital structure: Evidence from China. *China Economic Review, 7 (1), 14-36*.
- Imad, Z. R., (2015). Leverage and the Jordanian firms' value: Empirical evidence. *International Journal of Economics and Finance, 7(4), 1-7*.
- Jang, S., (2011). Growth-focused or profit-focused firms: transitions toward profitable growth. *Tourism Management 32 (3), 667-674*.
- Jensen, M., & Meckling, W., (1976). Theory of the firm: managerial behaviour, agency costs, and ownership Structure. *Journal of Financial Economics, October, 305-360*.
- Kebewar, M., & Shah, S. N., (2012). The effect of debt on corporate profitability: *Evidence from French service sector. Munich Personal RePEc Archive, Paper No. 43304, posted 19, -122*.
- Kennon, J., (2010). An introduction to capital structure: why capital structure matters to your investments. (Online) Available: www.about.com (July 20, 2010).
- Keppo, J., & Samu, P., (2006). Optimal bank capital with costly recapitalization, *The Journal of Business, 79 (4), 2163*.
- Khalaf, A. T., (2013). The relationship between capital structure and firm performance: evidence from Jordan. *Journal of Finance and Accounting, 1, (3), 41-45*.
- Khan, A. G., (2012). The relationship of capital structure decisions with firm performance: A study of the engineering sector of Pakistan. *International Journal of Accounting and Financial Reporting, 6 (2), 245-262*.
- King, M., & Santor, E., (2008). Family Values: Ownership Structure, Performance and Capital Structure of Canadian Firms, *Journal of Banking and Finance, 32: 2423-2432*.
- Modigliani, F., & Miller, M. H., (1963). Corporate Income Taxes and The Cost of Capital: A Correction. www.ccsenet.org/ijef *International Journal of Economics and Finance, 7(4), 20-39*.
- Modigliani, F., & Miller, M., (1958). The cost of capital, corporation finance, and the theory of investment. *American economic Review 48, June, 261-197*.

- Muritala, A. T., (2012). An Empirical Analysis of Capital Structure on Firms' Performance in Nigeria. *International Journal of Advances in Management and Economics*, 2278-3369.
- Naveed, A., Zulfqar, A., Ahmad, U., (2011). Determinants of Performance: A Case Of Life Insurance Sector of Pakistan, *International Research Journal of Finance and Economics*, Euro journals Publishing, Inc. 2011
- Pouraghajan, M., Emamgholipour, L., & Bagheri, U., (2012). The Relationship between Capital Structure and Firm Performance Evaluation Measures: Evidence from the Tehran Stock Exchange.
- Saeedi, A., & Mahmoodi, I., (2011). Capital structure and firm performance: evidence from Iranian Companies. *International Research Journal and Economics*, 70 (8), 20-26.
- Salim, M., & Yadav, R., (2012). Capital Structure and Firm Performance: Evidence from Malaysian Listed Companies, *Procedia - Social and Behavioral Sciences* 65, 156 – 166.
- Salteh, H. M., Ghanavati, E., Khanqah, V. T., & Khosroshahi, M. A., (2012). Capital Structure and Firm Performance; Evidence from Tehran Stock Exchange. *International Proceedings of Economics Development & Research*, 43 (8), 225-230.
- San, O. T., & Heng, T. B., (2011). Capital Structure and Corporate Performance of Malaysian Construction Sector. *International Journal of Humanities and Social Science*, 1 (2), 28-36.
- Shibru, W., (2012). Determinants of Capital Structure of Commercial Banks in Ethiopia. *Master's thesis, Addis Ababa University*.
- Smith, C. A., David J., & Hamish D., (2012). The relationship between capital structure and product markets in evidence from New Zealand. *Rev Quant Finan Acc* (2012) 38; 1–24.
- Soumadi, H., (2012). Capital structure and corporate performance empirical study on the public Jordanian shareholdings firms listed in the Amman stock market. *European Scientific*.
- Velnampy, T., & Niresh, A., (2012). The Relationship between Capital Structure & Profitability Sri Lanka, *Global Journal of Management and Business Research* 12 (7), 4-8.

To cite this article:

Okoro, Charles Ugochukwu, Davies, Stanley Diepiriye, Charles, Fortune Bella and Awcheme, Blessing Ewoma (2021). Micro and Proximal Determinants of Capital Structure of Quoted firms: A Multi-Variate Evidence from Nigeria. *Asian Journal of Economics and Business*, Vol. 2, No. 1, pp. 65-85