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Capital Structure and the Value of Quoted Firms in Nigeria: A Test of Miller and Modigliani Irrelevant Hypothesis

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Abstract

This study tested an insignificant hypothesis of the capital structure of Miller and Modiglian in Nigeria. The aim was to investigate the validity of the irrelevant hypothesis. The Tobins Q market value measure was modeled as a function of debt-to-equity ratio, long-term debt to equity ratio, and retained earnings ratio. Twenty companies were selected on the basis of the information needed to conduct the survey and the availability of annual financial reports for the ten-year period 2008-2017. Cross-sectional data were obtained from the annual accounts and annual reports of the companies. Random effects were used in the analysis of fixed and random effects. The study showed that 77% volatility in market value can be predicted by the variation of independent variables in the regression model. The beta coefficient of the variables found that the debt-to-equity ratio, the long-term debt-to-equity ratio, the capital-to-earnings ratio is positively and significantly related to the market value of the selected listed companies. The study concludes that capital structure is relevant, unlike Miller's and Modiglian's irrelevant hypothesis. Therefore, it is recommended that managers ensure an adequate combination of capital and debt.

Keywords: Capital Structure, Miller and Modigliani, Irrelevant Hypothesis.

I. Introduction

Classical opinion, like Gordons (1959), considered that micro-power as a measure of the profitability of a company is an indicator that the company is capable of adding value to its shareholders (Lintner, 1956). Classic models of financial valuation show that capital structure as a dividend policy is important because the optimal combination of capital affects the value of the company. It is used as a financial token for external people in relation to the stability and growth prospects of a company (Ross, 1977). Capital structure is a combination of sources of finance used by companies to finance their activities and assets (Modigliani and Miller, 1958). The concept of capital structure was not discovered until Modigliani and Miller (1958) explained it in the theory of the insignificance of their capital structure. How a company can finance its operations and assets through the issue of shares, bonds or preferred shares. The structure of capital is the right side of the balance sheet. The insignificance proposition theorem is a theory of the capital structure of a company, which assumes that leverage does not affect the value of the company unless the costs of the tax and hardships are incurred in the business environment.

Modigliani and Miller published their pioneering work on capital structure in 1958. In their article, they show that in a frictioned world where capital markets are ideal and where corporate income tax is lacking, the value of a company is not affected by the structure of that capital. . In other words, capital structure is irrelevant (Modigliani and Miller, 1958). Since then, researchers have sought to determine the importance of a firm's capital structure in the face of frictions and shortcomings in the capital market, such as leveraged tax shield profits (Modigliani and Miller, 1963), bankruptcy (Bradley, Jarrell and Kim, 1984; Kraus and Litzenberger, 1973) and Meckling, 1976) and information asymmetry (Myers and Majluf, 1984). Modiglian and Miller's (1958) milestone has been evaluated by numerous theories of capital structure, referring to the condition that capital structure is irrelevant to the value of the business. Miller and Modigliani used the theory of insignificance proposition as a starting point for their compensation theory, which describes the idea that a company chooses how much debt financing and how much capital financing to use to balance costs and growth.

Criticism of the irrelevant proposal theorem, however, focuses on the lack of realism to eliminate the impact of income tax and exemption costs on the capital structure of a company. Since the value of a business is affected by many factors, including profits, assets and market opportunities, it becomes difficult to prove the theorem. For economists, theory describes the importance of financial decisions rather than describing how financial transactions work.

In addition, there may be a positive or negative relationship between capital and the value of the company in the short term, depending on whether the bank is above or below the optimal capital index (Mathew et al., N.D). "The relationship between capital structure and the value of the firm has long been a point of controversy among scholars in corporate finance, since the seminar work of Miller and Modiglani in 1959 which noted that capital structure is irrelevant as passed to Gordon

view that it is relevant. More of the empirical evidence supports the relevant view of" Gordons, Delbor et al (2007), Cheng and Izeng (2011), Suderat et al., (2012), Rathinasamy et al., (2000), Altan and Arkan (2011), Ugbuhe and Emeni (2012) while "few evidence supports to irrelevant view Aggarwary and Zhao (2007), Rayan 2008, Aggarval et al., (2011). This study tests the validity of MM hypothesis on capital structure irrelevance."

2. Literature Review

Theoretical Bases of Capital Structure and Value of Firms

The Net Income and the Traditional Views

There are several variants of traditional theory. But the central point of all standpoints is that capital structure matters. The earlier version of the notion that capital structure is appropriate is network

The Net Income Approach

"Value of equity = discounted value of net income

$$E = \frac{Net\ Income}{Cost\ of\ equity} = \frac{NI}{k_e} \quad (3)$$

$$E = \frac{Interest}{Cost\ of\ debt} = \frac{INT}{k_d} \quad (4)$$

Therefore, the firm's overall expected rate of return or the cost of capital is":

$$Firm's\ cost\ of\ capital = \frac{Net\ operation\ income}{value\ of\ the\ firm} \quad (5)$$

$$k_o = \frac{NOI}{V} \quad (5)$$

The total cost of capital of a company is the weighted average cost of capital (WACC). There is an alternative way to calculate WACC (k0). WACC is the weighted average of the costs of all company values. Company L values include debt and equity. WACC = cost of equity x equity weight

+ cost of debt x debt weight

$$k_o = k_e \times \frac{E}{V} + k_d \times \frac{D}{V} \quad (6)$$

Suppose "firm L operates in a frictionless world. There are no taxes and transaction costs and debt is risk-free and shareholders perceive no financial risk arising from the use of debt. Under these conditions, the cost of equity, ke and the cost of debt, k, will remain constant with financial leverage. Since debt is a cheaper source of finance than equity, the firm's weighted average cost of capital will reduce with financial leverage. Suppose firm L's substitute, debt for equity and raises its debt ratio to 90 per cent." Rearranging Equation (5), we get

$$WACC = k_o = k_e \times \left(1 - \frac{D}{V}\right) + k_d \times \frac{D}{V} \quad (7)$$

$$WACC = k_o = k_e - (k_e - k_d)\frac{D}{V} \quad (8)$$

"Equation (6) that, given constant cost of equity, ke and cost of debt, k_d, and k_d less than k_e, the weighted average cost of capital, k_0, will decrease continuously with financial leverage, measured by D/V. You may also notice that k_0 equals the cost of equity, k_e minus the spread between the cost of equity and the cost of debt times D/V. WACC, Ic0, will be equal to the cost of equity, k_e if the firm does not employ any debt (i.e. D/V 0), and k_0, will approach k_d, as D/V approaches one (or100 per cent).

Under the assumption that k_e and k_d remain constant, the value of the firm will be":

$$V - E + D = \frac{NOI - INT}{k_e} + \frac{INT}{k_d} \quad (9)$$

$$= \frac{NOI - k_d D}{k_e} + \frac{k_d D}{k_d} = \frac{NOI - k_d D}{k_e} + D \quad (10)$$

$$= \frac{NOI}{k_e} + D\frac{k_d D}{k_e} \quad (11)$$

$$V = \frac{NOI}{k_e} + D\left(1 - \frac{k_d}{k_e}\right) \quad (12)$$

The "cost of dept with 100 per cent debt ratio (D/V),the optimum capital structure occurs at the point of minimum WACC. Under the NI approach, the firm will have the maximum value and minimum WACC when it is 100 per cent debt-financed.

The Traditional View

The traditional view has emerged as a compromise to the extreme position taken by the NI approach. Like the NI approach, it does not assume constant cost of equity with financial leverage and continuously declining WACC.

$$\text{WACC} = K_O = k_e x\ w_e + k_d x\ w_d \quad (13)$$

The value of debt is interest income to dept-holder divided by the most of debt:

$$Value\ of\ debt = \frac{Interest\ Income}{Cost\ of\ debt} = D = \frac{INT}{k_d} \quad (14)$$

The sum of value of debt and equity is the firm's total value, and is direct

Tly given by net operating income divided by WACC":

$$Value\ of\ \ firm = \frac{Net\ operating\ Income}{WACC} = S + D = \frac{NOI}{k_O} \quad (15)$$

Proposition I

"Firms with identical net operating income and business (operating) risk, but differing capitI structure, should have same total value.

Value of levered firm = Value of unlevered firm

$V_I = V_u$

$$Value\ of\ the\ firm = \frac{Net\ operating\ income}{Firm'sopportunity\ cos of\ capital} \quad (16)$$

$$V = V_1 = V_u \frac{NOI}{k_a} \quad (17)$$

Where V is the market value of the firm and it is sum of the value of equity, E and the value of debt, D; NOT = EBIT = the expected net operating income; and ka = the firm's opportunity cost of capital or the capitalization rate appropriate to the risk class of the firm.

The average rate of return required by all security-holders in a levered firm is the firm's weighted average cost of capital; i.e., WACC = k_0 or k_I . Thus

$$V_1 = \frac{NOI}{k_1 = k_a} \quad (18)$$

$$K_o = k_1 \frac{NOI}{V_1} \quad (19)$$

In the case of an unlevered firm, the entire net operating income is the shareholders net income. Therefore, the unlevered firm's WACC or k is equal to its opportunity cost of capital:

$$K_a = k_u \frac{NOI}{V_u} \quad (20)$$

Since the values of the levered and unlevered firms and the expected net operating income (NOI) do not change with financial leverage, the weighted average cost of capital would also not change with financial leverage. Hence, MM's Proposition also implies that the weighted average cost of capital for two identical firms, one levered and another unlevered, will be equal to the opportunity cost of capital.

Levered firm's cost of capital (k_I) unlevered firm's cost of capital (k_u)

$K_I = k_o = k_a = k_u$

to determine the levered firm's cost of equity, k_e

$$k_e = k_a + (k_a - k_d)\frac{D}{E} \quad (21)$$

Since ITL is an unlevered company, its opportunity cost of capital will be equal to its cott of equity, k_e

$$k_a = k_e = \frac{Expected NOI}{Market\ value\ of\ Dept\ and\ equity} \quad (22)$$

The expected EPS is:

$$EPS_e = \frac{Net\ income}{Number\ of\ shares} \quad (23)$$

The cost of equity will increase to compensate for the financial risk:

$$k_e = k_a + (k_a - k_d) = \frac{D}{E} \quad (24)$$

Interest tax shield corporate tax rate x interest

$$\left[\bar{X}(1-T)+Tk_d D\right]-\left[\bar{X}(1-T)\right]=Tk_d D \quad 25$$

The cash flows arising on account of interest tax shield are less risky than the firm's operating income that is subject to business risk. Interest tax shield depends on the corporate tax rate and the firm's ability to earn enough profit to cover the interest payments. The corporate tax rates do not change very frequently. Firm L can be assumed to earn at least equal to the interest payable otherwise it would not like to borrow. Thus, the cash inflows from interest tax shield can be considered less risky, and they should be discounted at a lower discount rate. It will be reasonable to assume that the risk of interest tax shield is the same as that of the interest payments generating them. Thus, the discount rate is 10 per cent, which is the rate of return required by debt-holders.

Thus, under the assumption of permanent debt, we can determine the present value of the interest tax shield a follows:

$$\text{PV of interest tax shield} = \frac{Corporate\ rate \times \text{int}\ erest}{Cost\ of\ debt} \quad 26$$

$$PVINTS = \frac{T \times k_d D}{k_d} = TD \quad 27$$

You may note from Equation (32) that the present value of the interest tax shields (PVINTS) is independent of the cost of debt: it is simply the corporate tax rate times the amount of permanent debt (TD)."

Value of the Levered Firm

The value of the unlevered firm

$$\text{Value of the unleaved firm} = \frac{Corporate\ rate \times \text{int}\ erest}{Cost\ of\ debt} \quad 28$$

$$V_1 = \frac{\bar{x}(1-T)}{k_a} + \frac{Tk_d D}{k_d} \quad 29$$

$$V_1 = V_u + TD \quad 30$$

"Equation (15) implies that when the corporate tax rate, T, is positive (T> 0), the value of the levered firm will increase continuously with debt. Thus, theoretically the value of the firm will be maximized when it employs 100 per cent debt."

Enhancing the Firm Value through Debt:

$$V_{I=} V_u + TD \quad 31$$

$$\frac{V_1}{V_1} = \frac{V_u}{V_1} + \frac{TD}{V_1}, \quad I = \frac{V_u}{V_1} = \text{TL} \quad 32$$

$$V_I = \frac{V_u}{1-TL} \quad 33$$

Thus, for I> 0, V_I will increase with L, and will be maximum at L =I

Debt-holders' interest income after personal taxes will be on the other hand, if the firm's expected net operating income is distributed as equity income, then the firm will pay corporate tax.

Assume that the personal tax rate on equity income is the equity income after personal tax will be:

Equity income after personal tax = (1-T)-T_{pe}(1-T)=(1-T)× (1-T_{pe}) 34

We can see that corporate borrowing will be advantageous if the interest income after personal tax is greater than the equity income after personal tax:

(1-T_{Pd})>(l-T) x (1-T_{pe}) 35

A firm will stop borrowing when (1- T_{Pd}) becomes equal to (1- T_{pe})

(1-T). Thus, the net tax advantage of debt or the interest tax shield after personal taxes is given by the following:

Net tax advantage

of debt= (1-T_{pd})-(1-T)x (1-T_{pe}) 36

Net tax advantage of debt = (T -T_{pd}) + T_{pe}(1 -T) 37

Personal tax rates for equity income and debt

Income: Suppose we are in a country where the government does not distinguish between interest income, dividends and capital gains for the purpose of ta.xes and has one rate of personal tax for all personal incomes. In this situation, the relative advantage of debt comes from the corporate tax rate as shown by the debt advantage ratio:

$$\text{Tax advantages of debt ratio} = \frac{(1-T_{pd})}{(1-T)\times(1-T_{pe})} = \frac{1}{(1-T)} \quad 38$$

If the personal tax rate for equity income and interest income is same (i.e., T_{Pd} = T_{pe} = T_P) then the interest tax shield (INTS) after all taxes is given as follows:

INTS=k_d D(1-T_P)_(1-T)(1-T_P) 39

=k_d DT (1-T_P) (since T_{pd}=T_{pe}=T_P)

When there is no difference between the personal tax rates o1. Equity income and interest income, then the levered firm's total income after all taxes is:

Levered firm's income after all taxes

= Unlevered firm's income after all taxes

+ Net tax advantage of debt

=χ(1-T)(1-T_{Pe})+k_d TD(1-T_P) 40

You may notice that the total income after all taxes of the unlevered firm is:

Unlevered firm's income after all taxes

= χ(1-T)(1-T_{pe}) 41

For the levered firm, the total income after all taxes is:

Levered firm's income after all taxes\

$$=(\bar{x}-x_d D)(1-T)(1-T_{pe})+k_d D(1-T_{pd}) \quad 42$$

$$=\bar{x}(1-T)(1-T_{pe})-k_d D(1-T)(1-T_{pe})-k_d D(1-T_{pd}) \quad 43$$

$$= \bar{x}(1-T)(1-T_{pe}) - k_d D(1-T_{pd}) - (1-T)(1-T_{pd}) \quad 44$$

$$PVINTS = \frac{Interest\ tax\ shield\ after\ persona\,;taxes}{Cost\ of\ debt\ after\ personal\ taxes} \quad 45$$

This present value of the interest tax shield after personal taxes is same as obtained earlier when the personal taxes were ignored.

$$PVINTS = \frac{Interest \times corporate\ \ tax\ rate \times (1 - personal\,;tax\ rate}{Cost\ of\ \ debt \times (1 - personal\ \ tax\ rate)} \quad 46$$

$$= \frac{k_d D \times T \times (1-T_{pd}}{k_d (1-T_{pd})} = TD \quad 47$$

Unequal Personal Tax Rates for Equity Income and Debt Income: In reality, in a number of countries, dividends are treated differently from interest income for tax purposes. Debt-holders are required to pay personal tax on interest income.

Miller's Model

"As we know, the present value of interest tax shield (PVINTS) represents gain from financial leverage, and it is the difference between the value of the levered firm and the value of the unlevered firm.

You will recall that this is the MM hypothesis with corporate tax. Miller introduced personal taxes in the model. Unlevered firm's income after all taxes"

$= X\,(1\text{-}T)\,(1\text{-}T_{pe})$

Since these cash flows are after the corporate tax as well as the personal tax, the appropriate discount rate will be the pure-equity capitalization rate, ka (or k) adjusted for personal taxes, i.e., $k_a\,(1\text{-}T_{pe})$ The value of the unlevered firm with corporate and personal taxes will be:

$$v_u = \frac{x(1-T)(1-T_{pe})}{k_u(1-T_{pe})} = \quad 49$$

In case of the levered firm, the shareholders' income is adjusted for interest before calculating corporate and personal taxes as shown below:

The levered firm's debt-holders' income after personal taxes Will be:

Debt-holders' income after personal tax

$= k_d\,D\,(1\text{-}T_{pd})$ 50

The levered firm's combined income to investors (shareholders and debt-holders) after corporate and personal taxes will be:

Levered firm's combined income after all taxes

$$\bar{x}(1-T)(1-T_{pe}) - k_d D(1-T)(1-T_{pe}) \quad 51$$

$$k_d D(1-T_{pe}) \quad 52$$

$$\bar{x}(1-T)(1-T_{pe})-k_d D(1-T_{pe})-(1-T)(1-T_{pe}) \quad 53$$

The unlevered firms' income after all taxes. Hence, the value of these cash flows is equal to the value of unlevered firm, V. The second term is interest tax shield including the effect of personal taxes. Therefore, these cash flows have the same risk as the interest payments, and the appropriate rate to discount these cash flows is k_d (I - T_{Pd}). Thus, the value of the levered firm is equal to the value of the unlevered firm plus the present value of interest tax shield:

$$v_1=\frac{\bar{x}(1-T)(1-T_{pe})}{k_d(1-T_{pe})}+\frac{k_d D(1-T_{pe})-(1-T)(1-T_{pe})}{k_d(1-T_{pe})} \quad 54$$

Modigliani and Miller (MM), 1958, illustrate that, under certain basic assumptions, the value of a company is not affected by its capital structure. The capital market is supposed to be perfect in a Modiglian and Miller world where internal and external people have free access to information; no transaction costs, bankruptcy costs or taxes; The choice of equities and debt becomes irrelevant and domestic and foreign funds can be perfectly replaced. M-M theory (1958) states that the value of a company should not depend on its capital structure. The theory further argued that a company should have the same market value and the same weighted average cost of capital (WACC) at all levels of the capital structure, since the value of the company should depend on its performance and risks. and not on the way Fund these operations. Miller presented the following version of the theory of capital structure insignificance. He appealed that decisions on the capital structure of companies and companies subject to personal taxation are irrelevant (Miller 1977).

If these key assumptions are relaxed, the capital structure may become relevant to the value of the business. Therefore, research has helped to alleviate ideal assumptions and describe the consequences. This theory was criticized because there was no perfect market in real life. Attempts to alleviate these assumptions, especially bankruptcy-free costs and taxes, led to the theory of static exchange.

These theories proposed by Modiglian and Miller (1958 and 1963) argue that, under perfect capital market conditions, the value of a company depends on its profitability rather than its capital structure, ie value is insignificant (Modigliani and Miller, 1963). A corporation tax rate of t and P after tax gives a leveraged enterprise a market value:

$$"VL=\bar{X}\ (1\text{-}t_C)/+t_C D_L \quad 55$$

Where, $\bar{X}$ equals expected earnings before interest and taxes,

$\bar{X}\ (1\text{-}\ t_C)/\rho$ = Vu, value of the firm ii all-equity-financed, and t_CDL is the present value of the interest tax-shield, the tax advantage of debt."

Empirical Review

Akani and Lucky (2016) "examined the effects of capital structure on shareholders' value of quoted Nigerian commercial banks from 1981 – 2014. The model built for the study proxy Return on Investment (ROI), Market value (EQP) and Earnings per Share (EPS) as dependent variables measuring shareholder's value as the function of percentage in Debt Capital to Total Capital (DC/TC), percentage of Equity Capital to Total Capital (EQC/TC), percentage of Preference Share Capital to Total Capital (PSC/TC as independent variables). Annual time series data were sourced from stock exchange factbook and financial statement of quoted commercial banks. The Econometrics Techniques of Ordinary Least Square (OLS), Augmented Dickey Fuller (ADF), Unit Root Test, Johansen co-integration test and pair wise Granger Causality test were employed in the empirical analysis. R2, Regression coefficient, probability value, t-statistics and f-statistics were used to determine the extent to which the independent variables can affect the dependent variable. The co-integration result shows that long run equilibrium exists among the variables except preference share capital. In model I, the study found that all the independent variables have positive relationship with the Return on Investment. Model II found that equity capital and preference share capital have positive effects but insignificant relationship with Return on Investment while short term borrowings and preference share capital have positive relationship and debt capital have negative relationship with Market value of quoted commercial banks. Model III found that Equity Capital has positive relationship while debt and preference share capital have negative relationship with Earnings per

Share. From the regression summary, Model I can explain 79% variation on Return on Investment, Model II explains 48% variation on Market values while Model III explains only 11% variation on Earnings per Share. From the above, the study concludes that capital structure has more effect on Return on Investment and Market values than Earnings per Share."

Imad (2015) "examined the impact of the leverage on the firms' value utilizing unbalanced pooled Ordinary Least Square (OLS) cross-sectional time series panel data regression approach to all listed companies in Amman Stock Exchange (ASE) during the period 2000-2013 after excluding the financial sector and services sector, due to their own characteristics. F-test was used to test the hypothesis that the changes in the firms' leverage level significantly explain the changes in the firms' value. The results shows that the firms' leverage level affect the firms' value for the Jordanian listed companies included in the sample test, this result inconsistent with the result of Rajan and Zingales (1995) who find inverse association between debt and performance."

Taiwo Adewale Muritala (2015) "examined the optimum level of capital structure through which a firm can increase its financial performance using annual data of ten firms spanning a five-year period. The results from Im, Pesaran & Shine unit root test show that all the variables were non-stationary at level. The study hypothesized negative relationship between capital structure and operational firm performance. However, the results from Panel Least Square (PLS) confirm that asset turnover, size, firm's age and firm's asset tangibility are positively related to firm's performance. Findings provide evidence of a negative and significant relationship between asset tangibility and ROA as a measure of performance in the model. The implication of this is that the sampled firms were not able to utilize the fixed asset composition of their total assets judiciously to impact positively on their firms' performance. Hence, this study recommends that asset tangibility should be a driven factor to capital structure because firms with more tangible assets are less likely to be financially constrained."

Saeed & Badar (2013) "examined the impact of capital structure on firm performance by analyzing the ROA and ATR against different levels of debt i.e. STD, LTD and TD. The results came were different from most of the previous studies. According to the results LTD has a significantly positive impact on the ROA." The results were compatible with Aghabeygzadeh & Akbarpour (2011) "as they found a positive impact as well. On the other hand TD and STD were found to have a negative but significant effect on the ROA. The reason mentioned by the author is that because the LTD is mostly given by banks and due to competition among the banks the LTDs are usually taken with lower required rate of returns and also efficiently use of the funds." "STD has relatively higher required rate of return and because in Pakistan the Money Market is not well developed and that's why affect negatively the ROA" (Saeed & Badar, 2013).

Patel & Bhatt (2013) "discussed the impact of the capital structure on the performance of the firm for the nonfinancial firms listed on the National Stock Exchange by studying any alteration in firm's Net Operating Profitability (NOP) due to change in capital structure variables. The author ended up with a conclusion that Total Debt has a negative impact on the firm's profitability." "LTD was also found to have an indirect impact on the firm's net profitability, this was attributed by the author that as LTD increases the management started fearing about their jobs and thus lead to underinvestment, plus the high interest rates incurred on LTD increases the fixed cost and ultimately financial leverage and thus decreases free cash flows and eventually profitability" (Mesquita & Lara, 2003). "Equity was found to have a positive impact on the net profits and the author has suggested for the firms to go for equity financing. SIZE of the firm has also a direct impact of Net Profitability of the firms" (Raheman, Zulfiqar, & Mustafa, 2007).

Saeed, Gull, & Rasheed (2013) "gave empirical results for the impact of capital structure on firm performance by observing firm performance against the capital structure decisions. Based on the results of the study STDTA has a positive and significant impact on ROA, ROE and EPS while LTDTA was found to be negatively related to all the performance variables. On the other hand TD was proved to have an optimistic impact of ROA, ROE and EPS. SIZE of the firm also affected the performance positively and significantly as well." "AG (Assets Growth) affected ROA and ROE insignificantly negative but for EPS the relation was significantly negative. The reason for positive impact of STDTA was because of its lower required rate (Mesquita & Lara, 2003). An addition to that according to the author STDTA is easily accessible as compared to LTDTA because bonds market is not yet developed in the country."

Yuvarajsambasivam and Abate Gashaw (2013) "examined the effects of firm specific factors (age of company, size of company, volume of capital, leverage ratio, liquidity ratio, growth and tangibility of assets) on profitability proxies by Return on Assets. Profitability is dependent variable while age of company, size of company, volume of capital, leverage, liquidity ratio, growth and tangibility of assets are independent variables. The sample in this study includes nine of the listed insurance companies for nine years (2003-2011). From the regression results; growth, leverage, volume of capital, size, and liquidity are identified *as* most important determinant factors of profitability hence growth, size, and volume of capita are positively related. In contrast, liquidity ratio and leverage ratio are negatively but significantly related with profitability. The age of companies and tangibility of assets are not significantly related with profitability."

Babalola (2014) "used 31 manufacturing firms with audited financial statements for a period of fourteen years (1999-2012) from static trade-off point of view. He employed the triangulation analysis and the study revealed that capital structure is a trade-off between the costs and benefits of debt, and it has been refuted that large firms are more inclined to retain higher performance than middle firms under the same level debt ratio."

Akinyomi (2013) "used three manufacturing companies selected randomly from the food and beverage categories and a period of five years (2007-2011) using the static trade-off and the pecking order theory point of view. He adopted the use of correlation analysis method and revealed that each of debt to capital, debt to common equity, short term debt to total debt and the age of the firms' is significantly and positively related to return on asset and return on equity but long term debt to capital is significantly and relatively related to return on asset and return on return on equity. His hypothesis also tested that there is significant relationship between capital structure and financial performance using both return on asset and return on equity."

Bassey, Aniekan, Ikpe and Udo (2013) "used a sample of 60 unquoted agro-based firms in Nigeria within a period of six years (2005-2010) from the agency cost theory point of view. They employed the Ordinary Least Square regression and descriptive statistics and revealed that only growth and educational level of firms owners were significant determinants of both long and short term debt ratios, assets structure, age of the firms, gender of owners and export status impacted significantly on long term debt ratios, while business risk, size and profitability of firms were major determinants of short term debt ratio for the firms under investigation."

Khalaf (2013) "used a sample of 45 manufacturing companies listed on the Amman Stock Exchange were used for this study which covers a period of five (5) years from 2005-2009. Multiple regression analysis was applied on performance indicators such as Return on Asset (ROA) and Profit Margin (PM) as well as Short-term debt to Total assets (STDTA), Long term debt to Total assets (LTDTA) and Total debt to Equity (TDE) as capital structure variables. The results show that there is a negative and insignificant relationship between STDTA and LTDTA, and ROA and PM; while TDE is positively related with ROA and negatively related with PM. STDTA is significant using ROA while LTDTA is significant using PM. The study concludes that statistically, capital structure is not a major determinant of firm performance. It recommends that managers of manufacturing companies should exercise caution while choosing the amount of debt to use in their capital structure as it affects their performance negatively."

Nirajini and Priya (2013) "used data of trading companies listed in Sri Lanka from year 2006 to 2010 and used correlation and multiple regression analysis and found that there is a significant relationship between capital structure and firm performance. There are mixed results about the influence of capital structure on firm performance."

Park and Jang (2013) "also found a positive relation between capital structure and firm performance after examining the data from 1995 to 2008 of 308 restaurant firms. Debt can efficiently be used to reduce free cash flows and to increase firm profitability, Park and Jang (2013). Capital structure does impact firm performance in a positive way, Nirajini and Priya (2013) found after analyzing financial statements of companies in Sri Lanka."

Mitani (2014) "chosed 799 manufacturing firms listed on the Tokyo Stock Exchange (TSE) and presented the evidence of positive correlation between leverage and market share under both types of competition, Cournot competition and Bertrand competitions. Huang and Song (2006) conducted research on Chinese firms and found negative relation between capital structure and firm performance. Ghosh (2007) came to know that leverage is inversely correlated with profitability."

Smith, Chen and Anderson (2012) "studied 100 companies listed on the New Zealand stock exchange (NZX), proved that leverage has a positive relation with sales growth but it also decreases return on assets (ROA). Pouraghajan et al. (2012) used 400 companies listed on the Tehran Stock Exchange (TSE) which belonged to 12 sectors and they found that debt ratio is significantly and negatively related to firm performance."

Al-Taani (2013) "used short term debt to total assets (STDTA), long term debt to total assets (LTDTA) and total debt to equity (TDE) as indicators of capital structure and used return on assets (ROA) and profit margin (PM) as performance indicators to study 45 companies listed on the Amman Stock Exchange (ASE) and capital structure and firm performance were correlated negatively and insignificantly. Firms with moderate level of long term debt, as in the market, will face an increase in sales, but firms with higher levels of debt standard will not have significant growth in sales or in market."

3. Methodology

This study used quasi experimental research design approach to test the validity of MM hypothesis on irrelevance of capital structure in Nigeria. This approach combines theoretical consideration (a-prior criterion) with the empirical observation and

extract maximum information from the available data. The researcher's aim in this study is to ascertain whether capital structure is irrelevant in Nigeria as proposed by Miller and Modigliani in 1959.

Sources of Data Collection

The study used for collecting data for this research is the secondary source of data collection obtained from various issues of: (i) Nigerian Stock Exchange (NSE) Annual Reports and Statement of Accounts.

Data Analysis Instrument

The study employed a panel data regression analysis. This is because the data set consists of observations of multiple variables over multiple time periods. Thus panel data combines time series and cross sectional data. It allows the researcher the flexibility in modeling differences in behaviour across individuals firm, it is also appropriate for this study because of its ability to take into account heterogeneity problem or individual effects in cross sectional data and give more informative data. The panel regression equation is different from a regular time-series or cross section regression by the double subscript attached to each variable. The general form of the panel data model is specified as:

$$y_{i}, \alpha + \beta X_{i,t} + \varepsilon_{i,t} \qquad \text{I}$$

The subscript i denotes the cross-sectional dimension and t represents the time-series dimension. The left-hand variable y represents the dependent variable in the model which represents the value relevance of firms listed on the Nigeria Stock Exchange, βx contains the set of explanatory variables in the estimation model, α and is taken to be constant overtime t and specific to the individual cross-sectional unit

Model Specification

$$MV = f(DER, LTD, ECR, RER) \qquad 2$$

The regression models are thus formulated as

$$MV_1 = \beta_0 + \beta_1 DER_i + \beta_2 LTDR_i + \beta_3 ECR_i + \beta_4 RER_i + \varepsilon \qquad 3$$

Where
MV = Market value proxy Tobin Q
DER= Debt Equity Ratio
LTD= long term debt ratio
ECR= Equity Capital ratio
RER= retained earnings ratio

Method of Estimation and Testing

i. "Panel data regression model specifications

Panel data can be estimated and analyzed in three different specification models. These are the correlation matrices the Fixed Effect Model (FEM) and the Random Effect Model (REM). In this study the fixed effect model is chosen over pooled OLS regression because of the advantages the former has over the latter.

ii. Pooled Regression Model

Albrigim Zappe and Winston (2011) stipulated that the error term should be independently and normally distributed with zero mean and constant variance and more importantly must not correlated with the independent variables pooled OLS linear regression is given as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{4it} + \beta_4 X_{5it} + U_{it} \qquad 4$$

where Y_{it} is the dependent variable; β_0 is a constant term: X_1, to X_5, are the independent variables; β_1 to β_4 are slope parameters: i...n refers to the cross-sectional units and t is the time period.

ii. The fixed effect model

The fixed model can be specified as

$$Y_{it} = \alpha_i + \beta_1 X_{1it} + \beta_2 X_{it} + \beta_3 X_{it} + \beta_4 X_{it} + U_{it} \quad 5$$

Where i in refers to the cross-sectional units representing the intercept value for each cross-sectional unit.

A-Priori Expectation

Base on theories such as market efficiency theory and empirical results examined in this study, the variables are expected to have a positive effect on the dependent variables. The mathematical implication is stated as follows":

$\beta_1 > \beta_1 > \beta_1 > \beta_1 > 0$	Reject MM hypothesis
$\beta_1 < \beta_1 < \beta_1 < \beta_1 > 0$	Accept MM hypothesis
$t_1 > t_1 > t_1 > t_1 > 0$	Reject MM hypothesis
$t_1 < t_1 > t_1 > t_1 > 0$	Accept MM hypothesis

4. Analysis and Discussion of Findings

The objective of the study as earlier stated was to the validity of MM capital structure irrelevant hypothesis in among Nigeria quoted manufacturing firms.

Table I "Random Effect versus Fixed Effect Models

Redundant Fixed Effects Tests			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.745830	(14,70)	0.0028
Cross-section Chi-square	38.956792	14	0.0004

Correlated Random Effects - Hausman Test			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	7.593197	4	0.0077

Source: Computed from E-View output

Regression Results

The table below has detail of the regression results for the study.

Table 2: Presentation of Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
		Fixed Effect Model		
DER	5.404256	8.785037	3.845004	0.0010
LTD	4.114058	6.536689	2.101652	0.0392
ECR	3.97E-05	6.789103	3.770943	0.0433
RER	4.567476	4.016006	1.244798	0.0174
C	1.112783	4.431482	2.578978	0.0120
		Effects Specification		
Cross-section fixed (dummy variables)				
R-squared	0.770126	Mean dependent var		0.715629
Adjusted R-squared	0.508158	S.D. dependent var		0.417724
S.E. of regression	0.371714	Akaike info criterion		1.045440
Sum squared resid	9.671980	Schwarz criterion		1.576722
Log likelihood	-27.52208	Hannan-Quinn criter.		1.259585
F-statistic	2.285185	Durbin-Watson stat		2.386338
Prob(F-statistic)	0.007412			

Random Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DER	-4.391873	2.424867	-2.179422	0.0280
LTD	4.859817	4.856175	2.589808	0.0156
ECR	9.209705	9.948605	4.924922	0.0077
RER	5.054671	4.235692	3.820656	0.0142
C	4.912649	8.407194	2.241314	0.0276
		Effects Specification		
			S.D.	Rho
Cross-section random			0.174110	0.0099
Idiosyncratic random			0.371714	0.0001
		Weighted Statistics		
R-squared	0.639380	Mean dependent var		0.471406
Adjusted R-squared	0.416364	S.D. dependent var		0.378087
S.E. of regression	0.379436	Sum squared resid		12.09359
F-statistic	3.860877	Durbin-Watson stat		1.956302
Prob(F-statistic)	0.000981			
		Unweighted Statistics		
R-squared	0.614596	Mean dependent var		0.715629
Sum squared resid	15.13129	Durbin-Watson stat		1.612342

Source: Computed from E-View output"

Discussion of Findings

The "Hausman test tests the null hypothesis that the coefficients which are estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator. Therefore, this includes insignificant P-value, Prob>chi2 larger than 0.05, the null is more suitable to use random effects. According to above table shows Hausman specification test the model has the value of p=0.0009 for the regression model of dependent and independent variables (table i). This shows fixed effect model is more appropriate, because the null hypothesis is not accepted. Therefore, this includes insignificant P-value, Prob>chi2 larger than 0.05, then it is more suitable to use random effects. However, if we have a significant P-value, then we should use fixed effects models."

Like the dividend policy, the opinion that capital structure has effect on the market value of listed companies has long been a point of departure among scholars in the field of finance. The Gordons relevant theory was challenged by the Miller and Modigliani irrelevant theory. However, it is important to note that the assumptions of the MM hypotheses are not attainable mostly in the emerging financial market like Nigeria where the financial market cannot be defined as a regulated or deregulated market. Empirical evidence has validated the relevant theory as opposed to the irrelevant theory.

The findings the study as shown in the table above consolidates the opinion of Gordons and invalidates the MM hypotheses. This finding shows that dividend policy is a major determinant of stock prices of the quoted firms. This finding confirms the findings of Akani and Lucky., (2016) on the effects of capital structure on the share wealth of Nigeria commercial banks, it confirm the findings of Patel and Bhatt (2013) whose study found significant relationship between capital structure and stock prices of firms listed on Pakistan stock exchange. It is in line with the findings of Ahmad, Abdullah, & Roslan (2012) whose study validated the relevant theory of Gordon.

5. Conclusion

The arguments, simulations and evidence in the foregoing studies seem not to agree on the exact causal direction between corporate capital structure and profitability and also on the impact of capital structure and the value of corporate firms. However the above issues that was raised in the literature review still remains largely controversial. "Like the dividend policy theories, the assumptions of capital structure theories are based on the well-developed financial policies as opposed to an emerging financial environment such as Nigeria. For instance the assumption of the perfect capital market compared to other emerging capital market that is characterized with insider dealings and other insider abuse. The theories suggest that firms select capital structure depending on attributes that determine the various costs and benefits associated with debt and equity financing. The divergences among scholars have deepened as more theories emerge with different opinions on the relationship between capital structure and performance of corporate firms." From the findings of the study, we conclude that capital structure is relevant.

6. Recommendation

In line with the findings of this study, the following recommendations are made:

- "The study recommends internal and external policies to deepen the efficiency of the Nigerian capital market to improve an easy source of capital to produce better returns for listed Nigerian listed companies and that a financial system such as a banking institution should reform to facilitate low-cost debt .
- The study recommends that a proper monetary and macroeconomic environment be created so that it has a positive impact on investment and those Nigerian companies' investments should be properly managed to maximize the profitability of a better shareholder fund.
- The study recommends structural reforms in the capital structure of some companies to improve their profitability. Nigerian companies should strive to match their high market performance with actual activities that can help to reflect market performance in their internal growth and accounting performance. And companies should rely less on debt capital, which accounted for most of their leverage, and focus more on developing internal strategies that can help further improve capital performance, and companies should develop a good strategy to maximize their capital effects in a way that creates growth opportunities.

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