

RELATIONSHIP BETWEEN CAPITAL STRUCTURE AND CORPORATE INVESTMENT STRATEGY OF SELECTED LISTED OIL AND GAS COMPANIES IN NIGERIA (2011 – 2020)

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ABSTRACT

Capital structure is the mixture of equity and debt used to finance investments while corporate investment strategy involves the selection of appropriate investments that will add to the value of an organisation on the long run. This study examined the relationship between corporate investment strategy and capital structure of selected listed oil and gas companies in Nigeria. Oil and gas industry was selected because of the huge investments involved in it and its contribution to the Nigerian economy. Corporate investment strategy was proxy with total investments while capital structure was proxy with Equity Finance (EQF), Debt Finance (DEF), Debt to Equity (DTE) and Leverage (LEV) in line with existing works. The panel data used were sourced from published financial statements of the companies for the period under study. The Hausman test conducted confirmed fixed effect model as most appropriate for the study. Findings are mixed. Both Equity Finance (EQF) and Debt Finance (DEF) have negative but significant relationship with corporate investment strategy. Debt to Equity (DTE) has a negative but not significant relationship. The positive relationship of Leverage (LEV) is not significant. While the findings confirm existing works, they negate others. The study concludes that the direction of the relationship and the significance depend on the attitude of managers who are expected to act in the best interest of shareholders. The study therefore recommends that corporate investments should be properly evaluated and funded with appropriate source in order to enhance the value to the firms.

Keywords: Capital Structure, Corporate Investment Strategy, Equity Finance, Debt Finance, Debt to Equity Leverage.

INTRODUCTION

Capital structure as a mixture of equity and non – equity (debt) is used for the purpose of financing productive assets needed for future growth and operations. It influences the total cost of capital and may raise the overall risks. The decision on the portion of debt to equity to use can hinder the value of a firm, and by extension, shareholders' wealth (Binh & Tram, 2020). Corporate investment strategy involves the selection of appropriate investments that will add to the value of an organisation on the long run. Corporate strategic decision is thus an important component of capital structure and both have been major focus of discussion among academics and other stakeholders over the years.

Corporate strategy determines the way a company utilizes its resources in relation to its objectives (Attah, 2014; Boquist et al., 1998). It is the foundation on which the vision and mission of a company is built (Collis & Montgomery, 2005). The strategy of a firm is

strongly influenced by its leverage decisions, which in turn affects, directly and indirectly, its investment and asset acquisition decisions (Hillier et al., 2008). Debts, if mismanaged, can lead to over or under-investment effects which influence such strategic decisions (Hillier et al., 2008). A firm may in anticipation of massive investments by competitors, engage in additional investments that may raise its own leverage position.

The main focus of researches on capital structure of recent in Nigeria is not on corporate investment strategy but on financial performance of firms. These include: Adenugba et al., (2016); Adesina et al., (2015); Ajibola et al., (2018); Akani & Ifechi, (2017); Chechet & Olayiwola, (2014); Igbinovia, & Ogbeide, (2019); Ihejirika et al., (2020); Joshua et al., (2018); Miko & Para, (2019); Nwachukwu & Akpeghughu, (2016); Umoh et al., (2021); Uremadu & Onyekachi, (2018).

Foreign works that relate to strategic decisions and capital structure include: Attar, (2014); Barton & Gordon, (1987); Barton & Gordon, (1988); Clayton, (1999); Chevalier, (1995); Istitieh & Rodriguez-Fernandez, (2006); Kovenock & Phillips, (1997, in Attah, 2014); La Rocca & La Rocca, (2007).

Diversification was used to proxy corporate strategy by Muhammad et al., (2020). They established no relationship between corporate strategy and capital structure. This collaborated the earlier works of Michale & Mhaked, (1986 in Muhammad et al., 2020), Singh, (2002 in Muhammad et al., 2020) but negated Banerjee (2011 in Muhammad et al., 2020) that established a negative relationship.

Change, (2008 in Muhammad et al., 2020) used sales growth rate to proxy corporate strategy and established a negative relationship between it and capital structure. This was collaborated by Boateng, (2010 in Muhammad et al., 2020) but was later negated by Fransesco et al., (2019 in Muhammad et al., 2020). No research work, to the best knowledge of the authors has been done in this area in Nigeria.

Oil and gas industry ranks high among the industries that contribute most to economic growth of Nigeria. Gylych et al., (2020) asserted that average of 75% of revenues to government and 93% of foreign incomes came from the industry in the past ten years. This forms the major source of financing of imports by the country. What affects the industry will definitely have ripple effects on the economy as observed by Bala, (2013). The non-use of investment to proxy corporate investment strategy, coupled with lack of research in this area in Nigeria (to the best knowledge of the authors) and conflicting findings in previous works create a research gap which becomes imperative to fill with focus on the oil and gas industry because of its importance to the Nigerian economy.

LITERATURE REVIEW

Empirical Review

Lowe & Taylor, (1994) researched on how corporate strategy impacts capital structure of companies in Australia with the aim of ascertaining the endogenous influence exerted on financial decisions and by extension, capital structure by corporate strategy. Various models were used with findings showing that capital structure is influenced by corporate strategy.

Clayton, (1999) worked on the relationship between investments, product market decisions and capital structure. Findings showed that debts and investments can serve as substitutes, mostly when leverage is rationally increased. Findings further showed that when leverage increases, investments will reduce and prices will increase, indicating a negative correlation

Kovenock & Phillips, (1997 cited in Attar, 2014) researched on behaviour of firms, product market and capital structure. The purpose was to ascertain whether decisions on

investments can be influenced by an increase in leverage most especially during recapitalization periods.

Muhammad et al., (2020) investigated how corporate strategy impacts capital structure of companies in Pakistani (Diversification and capital structure). The study used quarterly panel data for seven years (2010 – 2017) sourced from 120 quoted companies on the Pakistani Stock Exchange. Findings from empirical tests confirmed no relationship between corporate strategy (diversification) and leverage (capital structure).

A study was conducted by Change, (2008 in Attar, 2014) on what determine capital structure using observations from 13887 firms. Short term to debt ratio was used to measure capital structure. Growth as measured by total market value of assets to equity ratio was considered as a determinant of capital structure. Growth or total asset ratio had negative influence on leverage (a component of capital structure).

Vermeulen, (2002) confirmed that, investment during economic dooms, is better explained by leverage most especially for small firms. Aivazian et al., (2005) found that leverage (a component of capital structure) and investments are negatively related, the negative effect being stronger significantly with firms whose opportunity to grow is slow than their counterparts that have opportunities.

Hernando & Martinez – Carrascal, (2008) established a relationship that is not linear between indebtedness/debt burden (components of capital structure) and investment most especially when financial pressure is beyond certain limit. This was negated by Martinez – Carrascal & Ferrando, (2008) who provided evidence to show that debt burden combined with indebtedness impact negatively on investment.

Gebauer et al., (2017) used 2005 – 2014 firm level data of five European countries to provide evidence that firms found it difficult to use internally generated funds to finance investments after the 2008 financial crises.

Analyzing years 1995 to 2005, Barbosa et al., (2007) established that the impact which indebtedness of firms has on investments is a function of firm size and other factors.

Ferinha & Prego, (2013) used 2006 – 2011 data to provide evidence that for smaller firms, their financial position is not relevant when making investment decisions as investments have negative relationship with leverage, cost of capital and burden of servicing debts.

Pacheco, (2017) investigated on what determines investments by SME, using Portugal as a case study. The researcher used an unbalanced sample data sourced from 2456 Portuguese SMEs in the manufacturing sector over a period of five years from 2011 to 2015. Findings show that much investments are associated with SMEs that have higher liquidity, debt and profitability than smaller firms

METHODOLOGY

The study adopted multiple regression analysis in order to establish the relationship between corporate strategic investment and capital structure of listed Nigerian firms in the oil and gas industry.

The twelve listed firms in the downstream sub-sector of the oil and gas sector of the Nigerian economy constituted the population of the study. Oil and gas industry was selected because of the huge investments involved in it and its contribution to the Nigerian economy. Seven of the firms formed the sample size due to availability of data throughout the 2011 – 2020 research period, most of the period being in the first decade of the adoption of International Financial Reporting Standards in Nigeria. Secondary data were sourced from the published financial statements of the selected firms. The selected firms are: Mobil Nigeria Plc, Eterna Nigeria Plc, Forte (Now Adrova) Nigeria Plc, Total Nigeria Plc, Oando Nigeria

Plc and MRS Nigeria Plc.

Model Specification

It was established from the literature reviewed that Corporate Investment Strategy (CIS) is influenced by Capital Structure (CS) (Akinyomi & Olagunju, (2013); Hundal et al., 2018; Lambe, (2014); Nirajini & Priya, (2013); Salawu, (2009); Shab & Anne, 2020).

Thus:

$$CIS = f(CS) \dots \dots \dots \text{(Equation i)}$$

It was also established that CIS involves investments in Assets [Total Assets (TA)] that will increase the value of firms ((Muhammad et al., 2020)

Thus:

$$CIS = TA \dots \dots \dots \text{(Equation ii)}$$

Capital Structure (CS) is a mixture of Equity Finance (EQF), Debt Finance (DEF), Debt to Equity Finance (DTE) and Leverage (LEV) (Ajibola et al., 2018; Muhammad et al., 2020)

Thus:

$$CS = f(EQF, DEF, DTE, LEV) \dots \dots \dots \text{(Equation iii)}$$

Combining all the equations together:

$$TA = EQF + DEF + DTE + LEV \dots \dots \dots \text{(Equation iv)}$$

$$TA = \beta_0 + \beta_1 EQFit + \beta_2 DEFit + \beta_3 DTEit + \beta_4 LEVit + \epsilon_{it} \dots \dots \dots \text{(Equation v)}$$

$$CI = \beta_0 + \beta_1 EQFit + \beta_2 DEFit + \beta_3 DTEit + \beta_4 LEVit + \epsilon_{it} \dots \dots \dots \text{(Equation vi)}$$

Where:

β_0 = constant

β_1 - β_4 = are coefficient of parameters estimated

CI = Corporate Investments

TA = Total Assets for Corporate Investment Strategy

EQF = Equity Finance

DEF = Debt Finance

DTE = Debt to Equity Finance

LEV = Leverage

ϵ = Error term

The model used is a modification of the models used by Ajibola et al., (2018); Muhammad et al., (2020).

Measurement of the Variables

The measurement of the variables used for this work is in tandem with Muhammad et al., (2020).

Variables	Acronyms	Measurement
Corporate Investment	CI	Natural log of Total Asset
Equity Finance	EQF	Total Equity/Total Asset
Debt Finance	DEF	Total Liabilities/Total Asset
Debt to Equity Finance	DTE	Total Liabilities/ Total Equity
Leverage	LEV	Total Asset/Total Liabilities

FINDINGS AND DISCUSSION

Findings

	CI	DEF	DTE	EQF	LEV
CI	1.000000				
DEF	-0.046160	1.000000			
DTE	0.437235	0.513379	1.000000		
EQF	-0.566884	-0.211404	-0.750244	1.000000	
LEV	-0.182581	-0.597058	-0.434878	0.485016	1.000000

Source: Print out from E-views, 2021

The correlations among the variables are minimal as most are less than 0.7 (Table 1). The high but negative correlation (-0.750244) between Debt to Equity (DTE) and Equity Finance (EQF) is expected as Corporate Investments can be financed by a mixture of debt and equity and solely by equity. The use of one of the financing methods reduces the amount to be sourced from the second method.

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	36.6648 10	4	0.0000

Source: Print out from E-views, 2021

Ho: Random Effect is the most appropriate.

Hi: Fixed Effect is the most appropriate.

Decision: Fixed Effect is most appropriate based on the p-value of Hausman test.

Dependent Variable: CI				
Method: Panel Least Squares				
Date: 05/19/21 Time: 14:08				
Sample: 2011 2020				
Periods included: 10				
Cross-sections included: 7				
Total panel (balanced) observations: 70				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.343882	0.112525	74.15137	0.0000
EQF	-0.567732	0.195730	-2.900593	0.0055

DEF	-0.371140	0.134908	-2.751063	0.0083
DTE	-0.010348	0.025027	-0.413477	0.6810
LEV	0.008806	0.013226	0.665781	0.5086
Effects Specification				
Cross-section fixed (dummy variables)				
Period fixed (dummy variables)				
R-squared	0.927332	Mean dependent var	7.857571	
Adjusted R-squared	0.899718	S.D. dependent var	0.515084	
S.E. of regression	0.163113	Akaike info criterion	-0.553785	
Sum squared resid	1.330300	Schwarz criterion	0.088642	
Log likelihood	39.38247	Hannan-Quinn criter.	-0.298605	
F-statistic	33.58202	Durbin-Watson stat	1.515230	
Prob(F-statistic)	0.000000			

Source: Print out from E-views, 2021

The value of Durbin-Watson in Table 3 suggests the absence of autocorrelation.

Table 4				
SUMMARY OF UNIT ROOT TEST RESULT				
Variable	Levin, Lin & Chu Test		PP-Fisher Chi Square	
	At Level	I(d)	At Level	I(d)
CI	0.0000**	I(0)	0.0029**	I(0)
DEF	0.0000**	I(0)	0.0174**	I(0)
DTE	0.0000**	I(0)	0.0010**	I(0)
EQF	0.0000**	I(0)	0.0031**	I(0)
LEV	0.0000**	I(0)	0.0022**	I(0)

**5% level of Significance

Source: Print out from E-views, 2021

Table 4 shows that all the variables are stationary at level I(0). This indicates that they will not be affected by shock in the short or long run. It also means that the variables can be used in making future decisions affecting capital structure and corporate investment strategy. The findings on the relationship between capital structure and corporate investment are mixed as shown by each of the components of capital structure.

DISCUSSION

Equity Finance (EQF) has a negative (coefficient of -0.567732) but significant ($p = 0.0055$) relationship with corporate investment (Table 3). Equity is cheaper compared to debt and should be used if debt is not risk free (Myers & Majuf, 1984). A firm that uses mainly equity to finance its corporate investments has the advantage of using the interests it would have paid on borrowed funds to finance other productive activities (Syed & Tasmina, 2021). Such firm is less risky, financially, and can borrow needed funds at low interest rates though it may have low value due to its low cost of equity, used as a major determinant of cost of capital which eventually bears on the value of the firm. Frank & Goyal, (2007) as advocates of market timing theory proposed that both equity and debt should be raised if markets are favourable for them though the funds are not needed. The excess funds so raised can negatively affect corporate investments.

Conflicts may arise between managers and shareholders when managers take decisions that will benefit themselves. This is evident in situations where there is separation of power between managers and shareholders (Attar, 2014; Jensen & Meckling, 1976). A conflict occurs when managers act contrary to the interest of shareholders because they want

to retain pecks of office, favour and empire building. Managers can therefore utilize excess cash for things that can benefit themselves instead of investing it in profitable investments (Jensen, 1986). All these may account for the negative but significant relationship between Equity Finance (EQF) and corporate investments.

Debt Finance (DEF) has a negative (coefficient of -0.371140) but significant ($p = 0.0083$) relationship with corporate investment (Table 3). This negates Pacheco, (2017) that established that higher levels of investments are associated with SMEs that have higher liquidity, debt and profitability than smaller firms. It is however in conformity with Martinez – Carrascal & Ferrando, (2008) who provided evidence to show that debt burden combined with indebtedness impact negatively on investments.

Conflicts arise between debt holders and equity holders due to the belief that managers will act in the best interest of their shareholders (La Rocca et al., 2007). Myers, (1977) is of the view that managers may reject investments with positive Net Present Value if the leverage of the firm is already high, thereby reducing the value of the firm. This leads to underinvestment, thereby defeating the purpose of corporate investment strategy. This was referred to by the author as ‘debt overhang’ problem which makes firms with high leverage reject favourable opportunities to grow (Phillips, 1995). Brito & John, (2002) provided evidence to support the view that the presence of risky debts lead to underinvestment in projects that are risky in order to avoid risk.

Debts can also lead to overinvestments in projects that are risky due to the liability of equity holders that is limited (Brander & Lewis, 1986) which makes equity shareholders to receive nothing in case of bankruptcy. If the investments are favourable and profitable, equity holders are entitled to the residual profits after all the payables have been paid. The corporate investment strategy of firms is therefore determined by the payoff structure. This means that the cost of failed projects can be transferred by equity holders to debt holders who benefit less in successful projects (Attar, 2014; Jensen & Meckling, 1976). All these may negatively affect corporate investments.

Debt to Equity (DTE) has a negative (coefficient of -0.010348) but not significant ($p = 0.6810$) relationship with corporate investments (Table 3). A firm that intends to stay afloat must have enough equity that can cover all its liabilities. A firm in this type of situation is financially stable, can attract investors and can borrow at favourable interest rates. The choice of the best combination of debt and equity to finance profitable investments is not an easy one as both has advantages and disadvantages. A wrong selection is disastrous as it can lead to financial crisis, market loss and eventual liquidation (Adeniji & Adekoya, 2021).

Leverage, as used in this study, is the converse of Debt Finance (DEF) (Table 3). It has a positive (coefficient of 0.008806) but not significant ($p = 0.5086$) relationship with corporate investment. This finding confirms the work of Kovenock and Phillips (1997 cited in Attar, 2014) but contradicts Aivazian et al., (2005); Clayton, (1999) that established a negative relationship.

In all, the Adjusted R-square, which is the coefficient of determination is 89.4 (Table 3). This implies that 89.4% of the variations in corporate investment strategy can be accounted for by capital structure, proxy with Equity Finance (EQF), Debt Finance (DEF), Debt to Equity Finance (DTE) and Leverage (LEV).

CONCLUSION

The study concludes that each component of capital structure has relationship with corporate investment strategy. The direction of the relationship and the significance depend on the attitude of managers who are expected to act in the best interest of shareholders.

RECOMMENDATIONS

This paper recommends that corporate investments should be properly evaluated and funded with appropriate source in order to enhance the value to the firms. Managers should also act in the best interest of both equity holders and debt holders for the overall benefit of firms.

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