CAPITAL STRUCTURE AND OIL AND GAS PROFITABILITY IN NIGERIA

EMODUNEFE EYAMARU EDWIN

PG/MGS0410234

UNIVERSITY OF BENIN

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A PROJECT WORK SUBMITTED TO THE COLLEGE OF POSTGRADUATE STUDIES, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER IN BANKING AND FINANCE (MBF) DEGREE IN DEPARTMENT OF FINANCE, UNIVERSITY OF BENIN, BENIN CITY.

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DECLARATION

I, **EMODUNEFE EYAMARU EDWIN** a Master of Science (MBF) candidate of the Department of Banking and Finance, Faculty of Management Sciences, University of Benin, Benin City, Nigeria. Hereby declare that this project work is carried out by me under the supervision of **DR. O.G OMOROKUNWA,** a lecturer in the Department of Banking and Finance, Faculty of Management Sciences, University of Benin. The work embodied in this project has not being submitted in candidature for any degree and is not concurrently being submitted for any other degree.

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EMODUNEFE EYAMARU EDWIN **DATE**
PG/MGS0410234

CERTIFICATION

This project is certify that this study was submitted by I, **EMODUNEFE EYAMARU EDWIN** with matriculation number **PG/MGS0410234** of the Department of Banking and Finance, University of Benin, Benin City, in Partial Fulfilment of the Requirements for the Award of Masters Science in Finance (MBF)**.**

_____ _____

DR. O.G OMOROKUNWA **DATE**
(Project Supervisor)

_____ _____

DR. O.G OMOROKUNWA **DATE**
(Head of Department)

DEDICATION

This project is dedicated to Almighty God for his protection and provision throughout my study in this Institution of learning.

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ABSTRACT

This study examines the impact of capital structure on the financial performance of Nigerian oil and gas companies. Using an ex-post facto research methodology, the short-term debt to total asset, long-term debt to total asset, total debt to total equity, and return on asset variables were investigated as proxies for capital structure and financial performance, respectively. Based on the data's availability at the time of the inquiry, the study used an easy sampling strategy to gather secondary data. These data covers the years 2014 to 2023 and were compiled from the annual financial reports of five Nigerian oil and gas companies. Descriptive statistics and panel regression analysis were used to analyze the data. The analysis' findings shows that while long-term debt to total assets has a negative significant influence on return on assets, short-term debt to total assets and total debt to total equity had positive insignificant impacts. According to the findings, managers of oil and gas companies should reduce the amount of long-term debt they have because doing so has a negative effect on their performance. They should also exercise caution when making capital structure decisions.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO STUDY

Capital structure has a crucial role to play on determining a company's financial performance and fulfils the expectations of stakeholders who always demand an increase in their company's value. Rahman, Sarker, and Uddin (2019) defined capital structure as the mix in which firms' management chose to combine debt, equity or both in the firm's operation to maximize shareholders' wealth. Capital Structure incorporates equity capital, profit retained, long and short-term borrowings, preferred capital, debentures, current and non-current liabilities of the organization. An organization's decision on the structure of capital is a major decision the firm must take during their business lifetime. It is seen as a process whereby enterprises finance their activities and expansion by employing their financial resources in the form of assets. Capital structure connotes outstanding debt obligation and equity that empowers enterprise to comprehend the kind of funding it should employ to finance it business. Rosario and Chavali (2019) buttress that capital structure decision is a key determinants of a firm's profit. Dang, Bui, and Nguyen (2019) added that a common tool in improving firm's profit is the use of debt over equity. Capital structure has been considered as one of the most important factors in firm policy due to its crucial role in corporate performance (Gambo, Ahmad & Musa, 2016) According to Akintoye (2016) capital structure is important for any business establishment arising from the need to maximized the wealth of business stakeholders and because of the fact that such decision has a significant impact on the firm's ability to compete in the atmosphere. The capital structure is a framework which depicts how

equity and debts are employed for financing firm's operation to yield optimum returns for the stakeholders to maximize firms returns given a level of risk (Dada & Ghazali, 2016. Neru, Vintila and Gherghina (2018) and Oyedokun, Job-Olatunji and Sanyaolu (2018) discovered through their work that the influence of capital structure on firm risk and risk and financial performance was significant. The idea of relating to a company's capital structure and its value started since the establishment of irrelevancy theory of capital structure by Modigliani and Miller in 1958. In recent years, researchers come up with different perspectives of their studies; some revealed the positive relationship between capital structure and company profit while others revealed the negative relationship between the variables. Debt and equity influence firm value in different ways, Gill, Nahum, and Neil (2011) and Jaisinghani and Kanjilal (2017) argued that debt is less costly and has a stronger nexus with profitability than equity. On the contrary, Alarussi and Alhaderi (2018) and Jarallah, Saleh, and Salim (2014) argued that a higher proportion of debt in the capital structure mix negatively influences a firm's performance and diminishes its profit-generating efficiency. Because of the controversial results revealed by previous researchers, that situation provided an opportunity for a researcher to add the knowledge by analyzing the effect of capital on performance of Oil and Gas Company in Nigeria. The results obtained were compared with the trade-off theory of capital structure. Researchers revealed mixed results; positive relationship between the variables which was consistent with the trade-off theory and negative relationship which was not consistent with the trade-off theory.

1.2 Statement of the Problem

The Nigerian downstream oil and gas sector in the last few years have witness a plethora of challenges such as infrastructural decay, rising cost of importation of petroleum products which is a fall out of breakdown of the country refineries. The sub-sector is also witnessing liquidity challenges due to non-payment of fuel subsidy by the federal government amounting to billions of Naira in fuel subsidy arrears. The implication is that the profitability of making profit in the downstream oil and gas sector is on the decline. The study about capital structure is a crucial tool used in maximizing company financial performance which is in the best interest of shareholders who expect dividends and capital gains from the company. Firms use a mix of debt and equity in various proportions to maximize the overall market value of the firm (Rahman, Sarker & Uddin, 2019). Capital structure decisions also help managers to accomplish their financial strategies like investment and daily operational activities. Mireku (2014) also argued that capital structure is strongly linked to the capability of organization to fulfil the expectations of their stakeholders.

There are several other researchers who have analyzed the effect of capital structure on firm performance in developed countries. However, empirical studies on the impact of capital structure on firm performance in developing countries especially in Nigeria are very little. This is the major problem addressed through this study.

1.3 Research question

The Research question of this study is.

1. what is the relationship between debt to total asset and profitability of oil and gas company in Nigerian?
2. what is the relationship between debt to equity and profitability of the oil and gas companies in Nigeria?
3. what is the relationship between equity to total asset and profitability of the oil and gas companies in Nigeria?
4. what is the relationship between long term debt to total asset and profitability of the oil and gas companies in Nigeria?
5. what is the relationship between long term debt to total equity and profitability of oil and gas company in Nigerian?

1.4 Objective of Study

The main objective of this study was to analyze the effect of capital structure on profitability of oil and gas companies in Nigerian. The specific research objectives are:

(1) To determine the relationship between debt to total asset and profitability of oil and gas company in Nigerian

(2) To determine the relationship between debt to equity and profitability of oil and gas company in Nigerian

(3) To determine the relationship between equity to total asset and profitability of oil and gas company.

(4) To determine the relationship between long term debt to total asset and profitability of oil and gas company.

(5) To determine the relationship between long term debt to total equity and profitability of oil and gas company.

1.5 Hypotheses of the Study

The researcher tested the statement by either accepting or rejecting the hypothesis statement at 5% significance level. There was only one hypothesis statement which was divided into null and alternative hypothesis. The null hypothesis (H0) is stated as follows:

H0: Debt to total asset has no significant impact on the financial performance of oil and gas in Nigeria.

H0: Debt to equity has no significant impact on the financial performance of oil and gas in Nigeria.

H0: Equity to total asset has no significant impact on the financial performance of oil and gas in Nigeria.

H0: Long term debt to total asset has no significant impact on the financial performance of oil and gas in Nigeria.

H0: Long term debt to total equity has no significant impact on the financial performance of oil and gas in Nigeria.

1.6 Significant of the Study

Capital structure is a financial plan that refers to the composition of long-term sources of fund such as debentures, long term debts, preferences and ordinary shares capital

including reserves and surplus. Furthermore, the capital structure of a firm is the mix of debt, equity and other sources of finance that management of a firm uses to finance the firm's activities. This study seeks to determine how capital structure has affected the profitability of companies in the downstream oil and gas sector. The result to this study will provide government institutions, oil and gas companies, and financial Manager with necessary techniques of combining debt and equity and being able to maximize profit. The study found that capital structure is inversely associated with performance. As evidenced by the debt and return on equity regression results. According to the survey, one crucial decision that oil and gas companies must make is the debt-equity split. A good capital structure ensures that the available funds are used effectively. It prevents over or under capitalization, it helps the company in increasing its profits in the form of higher returns to stakeholders. This study will assist finance managers and policy planners of both public and private companies to formulate better policy decisions in respect of the mix of debt and equity capital and therefore increase shareholders value and reduce bankruptcy costs.

1.7 Scope of study

Capital is an important and crucial resource for all companies. The study is to examine the impact of capital structure on the profitability of a firm in the downstream sector of the oil and gas industry in Nigeria within the time frame of 2014 to 2023.

1.8 Limitation of the study

(1) The limitation will be limited to the amount of information made available. Thus, the work may not be a hundred percent (100%) perfect, but a considerable work would be due and objectively will be observed.

(2) Time constraint: the time available for the research work and the researcher, other office work put some limitation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter will provide an overview of relevant and related literature on the topic. It will critically examine previous research works, concept and theories that explored through an analysis of both quantitative and qualitative studies that investigate the intricate relationship between capital structure and profitability in oil and gas industries in Nigeria.

2.2 Conceptual Review

2.1.1Concept of Profitability

The term profitability of a firm is determined by the way it is financed According Ross (2003) states that a corporation can raise money (cash) from lenders or from shareholders. If it borrows, the lenders contribute the cash, and the corporation promises to pay back the debt plus a fixed rate of interest. If the shareholders put up the cash, they get no fixed return, but they hold shares of stock and therefore get a fraction of future profits and cash flow. The shareholders are equity investors, who contribute equity financing. The choice between debt and equity financing is called capital structure decision. Capital refers to the firm's sources of long-term financing.

A firm raises equity financing in two ways. First, they can issue new shares of stock. The investors who buy the new shares put up cash in exchange for a fraction of the corporation's future cash flow and profits. Second, the corporation can take the cash flow

generated by its existing assets and reinvest the cash in new assets. In this case the corporation is reinvesting on behalf of existing stockholders. No new shares are issued.

What happens when a firm does not reinvest all the cash flow generated by its existing assets? It may hold the cash in reserve for future investment, or it may pay the cash back to its shareholders.

Business is inherently risky. The financial manager needs to identify the risks and make sure they are managed properly. For example, debt has its advantages, but too much debt can land the company in bankruptcy (Brealey, Myers, & Allen, 2011)

Financing arrangements determine how the value of the firm is sliced up. The firm can determine its capital structure. That is, the firm might initially have raised the cash to invest in its assets by issuing more debt than equity; now it can consider changing that mix by issuing more equity and using the proceeds to buy back some of its debt. Financing decisions like this can be made independently of the original investment decisions. The decisions to issue debt and equity affect how the pie is sliced (Ross, 2003).

Several theories have been advanced in explaining the capital structure and profitability / value of firms. The existing theories of capital structures and profitability/ firm value are explained as follows.

2.1.2 Concept of Capital Structure

The relationship between capital structure and Profitability of the firm is a fundamental concern for business across various industries including the oil and gas sector. In Nigeria, the oil and gas sector play a vital role in providing valuable resources in it drilling and exploration activities. Understanding how Capital structure decision impact the value

creation process of oil and gas industries in Nigeria is important for shareholders, policy makers and researchers. The unique characteristics of oil and gas industries, such as their reliance on explorations and drilling activities, maintenance and repair, environmental and safety services introduces complexity in analyzing the determinants and consequences of capital structure choice.

In Nigeria context where the oil and gas industries are evolving amid changing regulatory framework and market dynamics, examining the relationship between capital structure and firm value becomes even more pertinent.

The concept of capital structure suggests two terms capital and structure. The term capital indicates financial assets or resources that are used individual, business or government to generate income or support economic activity. Capital can take various forms which include financial capital, physical capital, human capital and social capital. This therefore means that capital refers to resources that are deployed or invested to create wealth, generate income and support economic activities. Capital can also be anything that confers value or benefit to its holders, such as factory and machinery, intellectual property like patents, or other financial assets of a business or an individual (Risman 2021). Structure which typically represents the organization or arrangement of financial assets, liabilities and instruments within a financial entity or transaction. It encompasses how these elements are organized, combined and managed to achieve specific financial objectives or outcomes. This can include the composition of portfolio, the design of financial products, the allocation of funds within an investment vehicle or the arrangement of debt and equity. Structure in finance often involves considerations such risk management, diversification, cost optimization and regulatory compliance (Birgham

2015). A composite of the terms outlined will be capital structure which refers to the various methods of company choosing to finance its operation and growth. Birgham and Houston (2015) define capital structure as a mix of debt and equity securities that a firm uses to finance its assets. They emphasized the importance of finding an optimal balance between debt and equity to maximized firm value. Parmasivan and Subramanian (2009) define capital structure as the relationship between the various long-term financing such as equity capital, preference capital and debt capital. Gitman and Zutter) define capital structure as a mixture of long-term debt and equity maintained by a firm. The traditional definition of capital structure often reflets the long-term financing decision made by management to optimize the balance between risk and return. The financial structured perspective considers capital structure and financing such as preferred stock, retain earnings and hybrid securities. Capital value Vs Book value defines capital structure in terms of market value, which reflects current market prices of a company's debt and equity, or book value which represents the historical cost of the company's financing source as recorded on its balance sheet. Capital structure is how oil companies finance overall operations and growth by using different sources of funds. Debt comes in the form of a bond issue or long-term notes payable, while equity is classified as common stock, preferred stock or retained earnings. Short term debt such as working capital requirement is also considered to be part of the capital structure Mahmoud (2014) when analyst refers to capital structure they are most likely referring to oil firm debt – to equity ratio) D/E which provides insights into how risky a company is , usually a company that is heavily financed by debt has more aggressive capital structure and poses greater risk investor. This risk however may be the primary source of the firm's growth

(Anarfo 2015). The capital structure of oil and gas industries refers to the oil and gas company's outstanding debt and equity. It allows an oil and gas industry to understand what kind of funding the company uses to finance its overall growth and activities. It shows the proportion of senior debt subordinated debt and equity) Capital structure is essentially concerned with how the firm decides to divide its cash flow into brad components, a fixed components that belong to equity shareholder Appiadjei (2014). The purpose of capital structure is to provide an overview of the level of the company's risk. The higher the proportion of debt financing that the company has, the higher its exposure to risk Anju (2018) A company's capital structure points out how its asset are financed, when a company finance its operation by opening up or increasing capital to an investor (preferred stock, common stock or retain earning), it avoids debts risk thus reducing the potential that it will go bankrupt. According to Dare and Shola (2010) there are various levels to debt and equity which firms adopt: 100% equity: 0% debt or 0% equity debt in its capital structure. The level of debt and equity has been an issue for oil and gas industries in Nigeria. According to Nwankwo (2014) the debt component of the capital structure of firms in Nigeria relied majorly on short term debt and has low amount of long-term debt.

Capital structure comes in various forms such as equity share capital, debt financing, hybrid financing optimal capital structure and target capital structure.

Equity share capital: This is capital structure funded through issuing of shares of ownership in a company. This includes common stock, preferred stock, or other equity instruments. This type of financing does not require repayment of principal payment of interest, it tends to reduce the train on the company especially during periods of low cash.

It also comes with low financial risk, long term stability, no collateral requirement and no legal obligation.

Debt financing: this type of capital structure is primarily funded through borrowing money typically through loans, bonds and other debts instruments. Debt financing obligates the company to pay back borrowed funds along with interest, debt financing has tax benefits as debts is often tax -deductible, debt financing enable companies to leverage their existing capital to invest in growth opportunities potentially leading to higher returns, it also does not dilute ownership stakes, however it tends to pose risk of insolvency and can give a negative credit rating to a firm.

Hybrid Financing: This is a capital structure that combines both debt and equity financing. This can include convertible bonds, mezzanine financing or preferred stock with debt like features, hybrid financing aligns the interest of investors and management by providing incentives for performance improvement, for instance convertible securities may encourage management to pursue strategies that increase the company's stock price, it also helps in the mitigation of dilution, enhanced creditworthiness, flexibility and risk sharing.

Optimal capital structure: This is the ideal mix of debt and equity financing that minimizes the company's cost of capital while maximizing its value.

Optimal capital Structure: This is the ideal mix of debt and equity financing that minimizes the company's capital while maximizing its value. This is influenced by factors such as the company's risk profile industry norms and market conditions. The capital structure offers cost efficiency, tax benefits, financial flexibility and shareholders

value however may lead to dilution of ownership st existing shareholders (reduction in the percentage of ownership stake) and a market perception that may not be beneficial.

Target capital structure: This is the desire mixed of debt and equity financing that a company aims to maintain over a long term. It represents the company's optimal balance between financial leverage and risk tolerance. This type of capital structure helps firms to minimize the company's weighted average cost of capital, it also helps to manage financial risk, reducing the vulnerability to economic downturns. A clear communication of target structure to investors and stakeholders improves transparency and trust leading to better access to capital market. Target capital structure may be rigid and may limit the company's flexibility in responding to dynamic market conditions, it also tends to incur adjustment cost and overreliance on certain types of models.

Conservative versus Aggressive Capital: Company may adopt either an aggressive approach with lower levels of debt and higher equity prioritize financial stability or an aggressive approach with higher levels of debts and lower equity aiming to maximize returns for shareholders, this capital structure yield higher return on equity, enhance financial leverage, tax benefit and flexibility in investment.

The capital structure of oil and gas firm in Nigeria has likely seen improvement in recent years, driven by regulatory reforms aimed at strengthening financial resilience and investor confidence. The reforms may include an increase in minimum capital requirement and enhanced risk-based capital frameworks. As a result, oil and gas industries in Nigeria have bolstered their capital reserved positioning them better to absorb risk and meet regulatory requirements. However, challenges such as access to

long term funding and maintain profitability may still impact the capital structure dynamics of oil and gas firm in Nigeria.

2.3 Theoretical Review

The Different academics in the field of corporate finance have advanced various capital structure -related ideas. These ideas aim to clarify how business select their capital structure to increase profitability. This theoretical review aims to explain various theories that give insight into the relationship between capital structure and firm profitability. They include pecking order theory, Agency cost Theory, Market timing Theory, Information Theory, Trade off theory.

2.3.1 Pecking order Theory

This theory proposed by Myers and Majluf (1984) posits that oil and gas industries have a hierarchy of preferred financing sources with internal funds such as retained cash earning and external, from borrowing and sales of securities. Firm prioritizes its sources of funding in decreasing order, starting with internal financing through the utilization of retain earnings and move on to debt when this is not an option. When debt funding is no longer feasible equity financing is often considered as a last resort. It stems from the idea of information asymmetry, whereby firm managers often have access to more knowledge than external users such as creditors and investors, as they attempt to mitigate this risk.

Preference for inter funds: oil and gas industries in Nigeria may prioritize using retained earnings and cash revered to finance their investment and operational need. This is

because internal funds do not involve any information asymmetrical concern and do not incur transaction cost like debtor equity issuance.

Reluctance to take on debt: Due to the uncertainty related to issuance firm in Nigeria, might be hesitant to take on debt. Debt financing requires periodic interest payment and eventual repayment of principal, which could strain firms' cash flow, especially during economic downturn or in volatile market. Additionally, debt financing may be more expensive or harder to obtain due to risk associated with exploration operations.

Equity issuance as a last resort; if internal fund is insufficient and debt financing is deemed too risky or costly, oil and gas industry in Nigeria may resort to equity issuance as a last resort. However, this could lead to dilution of ownership and signal of negative information.

In terms of profitability, the pecking order theory suggests that firm with strong internal cash generation and low leverage ratio may be perceived more favorable by investors leading to higher Conversely firms that rely heavily on external financing particularly equity issuance, may face higher financing cost and lower valuation due to signaling effect and ownership dilution concerns.

Therefore, the capital structure decisions of oil and gas industries in Nigeria guide by pecking order theory can significantly influence their perceived value in the market.

2.3.2 Trade – off Theory

This theory as posited by Barker and Wurgler (2002) suggests that firms seem to strike a balance between task advantage of debt and cost associated with maximizing that value of the firm, on one side of the trade-off debt offers tax benefits since interest payment

are tax deductible reducing the overall tax burden on the firm. These incentivizes companies including oil and gas industries in Nigeria to use debt to be financing to capitalize on these tax shield, especially, when corporate tax rate is relatively high.

However, there is a flip side to debt financing as a company takes on more debt, it increases its financial leverage, which in turn raises the risk of financial distress. These risk manifest in various form such as bankruptcy cost, agency cost and potential loss of reputation, for oil and gas industries operating in Nigeria where regulatory framework market and market conditions can be complex the cost of financial distress can be particularly significant.

Therefore, the trade -off theory suggest that firm including oil and gas companies in Nigeria must weigh these competition factors when determining their optimal capital structure. They need to find the right balance between the tax benefits of debt and the potential cost of financial distress. This optimal point represent the level of leverage that maximizes the value of the firm.

2.3.3 Agency Cost

This Theory which was posited by Jensen and William (1976) state that in the environment of oil industries in Nigeria, the agency cost theory plays an important role in shaping both capital structure and profitability. Agency cost (cost incurred by shareholders in monitoring and controlling manager to ensure that manager act in the best interest of shareholders) which arises due to the inherent conflicts between principal) shareholder) and agents) manager) where agent may prioritize their own interest , over the interest of the principal this may influence the capital structure choice of oil and gas

industries in Nigeria reason being that managers may have incentives to prefer debt financing and avoid dilution of ownership equity to maintain control) when a company issue additional shares reducing percentage of ownership stake of existing shareholders). However, excessive share can increase the firms' financial risk, leading to potential conflicts with shareholders who bear the burnt of these risk. Thus, managers may face pressure to balance the benefits of tax shield and leverage with the agency cost associated with debt, such as risk shifting behavior or substitution. This may then impact on the firm's overall value.

Excessive agency cost such a managerial attachment or opportunist behavior can erode shareholders' wealth and reduce firm value. Therefore, investors may discount the firm's value due to the perceived agency risk, leading to a higher cost of capital and lower market value. Conversely firms with the effective governance mechanism and alignment of managers incentives with shareholders interest can mitigate agency cost, enhance transparency and ultimately increase firm value. These firms are likely to be viewed more favorably by investors leading to a higher valuation and lower cost of capital.

In summary, the agency cost theory underscores the important of corporate governance practice, incentive alignment and capital structure decision in shaping the value of oil and gas industries in Nigeria. By managing agency costs effectively these firms can enhance shareholders' wealth and improve their competitive position in the market.

2.3.4 Market timing Theory

Franco Modigliani and Merton Miller (1958) suggests that oil and gas industries in Nigeria time their capital structure base on market conditions and timing opportunities. Firms may issue them.

Debt or equity when market valuation is favorable or when there is excess liquidity in the market. By timing their capital and enhancing firm value. According to this theory firms tend to issue their securities when conditions are favorable, such as during periods of low interest.

Rate or high investors demand. Oil and gas industries may opportunistically time their debt or equity issuance based on prevailing market conditions, especially during a time of economic expansion or when interest rates are low. Oil and gas industries in Nigeria are influenced by their perceptions of market conditions and potentials cost and benefit associated with debt and equity financing, which goes to say that effectively timing market transactions can enhance firm value. By issuing securities when market conditions are favorable. Oil industries can reduce their cost of capital and increase access to external funding thereby improving their financial flexibility and investment opportunities. Additionally, issuing securities at favorable valuation can enhance shareholders' wealth and contribute to the overall market perception of the firm's value. However, misjudging market timing or attempting to time the market unsuccessfully can lead to adverse consequences such as higher finance cost, dilution of ownership or signaling negative information to investors.

In summary market timing theory suggests that capital structure decisions of oil industries in Nigeria are influenced by their perceptions of market conditions and potential impact on firm value. By effectively timing capital market transactions, firm can

enhance their financial market flexibility and shareholders' wealth, but they must also consider the risk and uncertainties associated with market timing strategies.

2.3.5 Information asymmetry Theory

Information asymmetry by Gorge Akerlof (1970) suggests that the differences in information between the various parties in a transaction can led to market inefficiencies and impact capital structure decisions and overall firm value. This theory relates to capital structure and firm value of oil and gas industries in Nigeria in the following ways:

Capital Structure decision: information asymmetry between managers and investors can influence capital structure decision of oil and gas industries in Nigeria. Managers possess private information about firms' financial health, investment opportunities and risk which may not be fully choosing capital structures that reflect their private knowledge.

Managers may prefer debt financing to equity if they believe that the firms' prospects are favorable but may avoid equity issuance if they perceive undervaluation in the market due to their superior information.

Adverse selection and financing cost: information asymmetry can lead to adverse selection problems in the capital markets. In the context oil and gas industries in Nigeria adverse election arises when firm with poor prospect or high-risk profile are more inclined to seek external financing, leading to higher financing cost for investors. Asymmetry information exacerbates adverse selection, as investors may demand higher returns to compensate for the perceived risk associated with the lack of transparency. Consequently, oil and gas firms may face higher costs of debt and equity financing which can impact capital structure decision and firm value.

Monitoring and governance: To mitigate the adverse effect of information asymmetry on capital structure and profitability, oil industries may implement monitoring mechanisms and corporate governance practices. Enhance disclosure requirements, transparent financial reporting and effective communication with investors can help mitigate information asymmetry and improve market perception of profitability. Additionally, implementing binding policies such as dividend policies or debt covenants can align managerial interest with shareholders interest and signal firm quality to investors

Implication for firm value: information asymmetry can affect the perceived value of oil and gas firm in Nigeria. Greater transparency and reduced information asymmetry can enhance market confidence and reduce firms' cost of capital, leading to a higher firm valuation. Conversely, persistent information asymmetry can erode investors' trust and increase financing cost negatively impact profitability.

In summary information asymmetry highlights the importance of transparency, disclosure and effective governance mechanism in shaping the capital structure decision and profitability of oil and gas industries in Nigeria. By addressing information asymmetry, firms can enhance market confidence, reduce financing costs and ultimately improve their competitiveness and value in the market.

2.4 Empirical Review

In the realm of empirical research, Bashiru and Bakar (2016), examine the impact of capital structure on financial performance of listed firms in Nigeria oil and gas industries. The study adopted an ex-post facto research design and utilized panel data collected from annual reports and accounts of the sampled firms for the of 2005 to 2014. The data was

first analyzed using descriptive statistics to provide firm summary statistics of the variable. Subsequently a panel data regression technique was used to assess the extent of the effect of the independent variable on the dependent variable. It was found that capital structure proxied by STD, LTD and TD has a negative and significant relationship with financial performance (ROA and EPS) of listed petroleum marketing companies in Nigeria. Further, the result also shows that firm size and tangibility have positive and significant relationship with ROA and EPS. Thus, the study concludes that statistically, capital structure is a major determinant of firm financial performance. Therefore, it recommends that managers of oil and gas companies should exercise caution while choosing the amount of debt to use in their capital structure as it affects their performance negatively.

Furthermore, Pradhan and Khadka (2017), examined the firm specific and macroeconomics determinants of capital structure in Nepalese commercial banks. The ratio of total debt to total asset, ratio of long tern debt to total assets, and ratio of short-term debt to total asset are the dependent variable. Bank size, asset growth, liquidity, profitability, and net worth are the statistics and bank supervision report published by Nepal Rastra Bank and annual reports of the selected banks and macroeconomics data are collected from economic survey publish by Ministry of finance. The survey is based on 140 observations from 20 commercial banks in Nepal during the period of 2008 to 2014. The multiple regression model is estimated to test the significant and important of capital structure in Nepalese commercial banks. The results show that there is a positive relationship of banks size and gross domestic product with total debt to total asset ratio. This indicate that the increase in liquidity, and net worth leads to decrease in total debt to

total asset ratio. This study revealed bank size, profitability, net worth, gross domestic product and inflation have negative impact on long term debt to total assets. The study also shows that there is a positive impact of bank size, profitability, net worth, gross domestic product and inflation on short-term debt to total assets ratio.

Kipesha (2014) argued that, business firms especially small ones, are said to die or poorly perform due to different challenges facing managers on the financing decisions. Due to the importance of capital structure decisions on firm performance, studies have been conducted to measure its applicability and reveal mixed results. Researchers targeted the previous researchers, those who revealed the positive relationship, those who revealed negative relationships and those who revealed no relation.

The first group of researchers tested the relationship between capital structure and company profit proved the negative results between the variables as follows; Mireku (2014) in Ghana listed companies revealed that firm's financial performance has negative relationship with financial leverage and depend more on internal source of finance thus supporting the pecking order theory. Chisti (2013) in listed companies in India discovered that Debt to equity ratio of Indian listed companies was negatively correlated to profitability ratios. This empirical evidence shows only the negative relationship between the variables without showing the other source of finance which is mostly preferred by Indian Listed companies which might prove the applicability of the capital structure theories.

Kayode (2014) in Nigeria conducted a study on the effect of capital structure on firm performance in Nigeria using the panel data of 10 companies from 2003 to 2012. Researchers used descriptive and regression techniques to test the relationship between

performance variables of return on assets and return on equity against capital structure variables of total debt to total assets, total debt to equity. In his study results he revealed that capital structure was negatively related to firm performance. Lavorskyi (2013) in Ukraine conducted a study on the impact of firm performance in Ukraine. Researchers used regression to measure the relationship between the capital structure variable of Leverage ratio against performance variables of Return on assets, total factor productivity (TFP) and EBIT margin. After analyzing the relationship, researchers found that firm leverage was negatively affecting firm performance.

Another study was done by Tailab (2014) in America used a sample of 30 energy American firms for a period of nine years from 2005 to 2013 to test the effect of capital structure on profitability of energy American firms and found the negative relationship between debt ratios and performance variables of return on equity (ROE) and return on asset (ROA) while company size in terms of sales indicated a negative effect only on return on equity (ROE) of the energy American firms. Researcher used multiple regression methods to analyze his study data where 10% of ROE and 34% were predicted by independent variables of short-term debt, long term debt, total debt to equity ratios and firm size measured by company sales.

Another study Leon (2013) was about the impact of capital structure on financial performance of the listed manufacturing firms in Sri Lanka. He used a panel data of 30 listed oil and gas companies from 2008 up to 2012 to measure the relationship between the variables. The data were analyzed, and hypotheses were tested using correlation and regression analysis using SPSS. The findings of his study revealed that there is a

significant negative relationship between leverage and return on equity. At the same time the relationship between leverage and return on asset showed no relationship.

Nasreem (2013) also tested the relationship between firm's capital structure and financial performance in Pakistan using a sample of 83 companies listed in Karachi stock exchange. Researchers used debt to equity ratio as a measure of capital structure while other ratios like earning per share, price earnings ratio; operating profit margin, return on asset and return on equity were used as proxies for firm performance. After analyzing data using regression model, researcher found that financial performance of a company was significantly affected by their capital structure and their relationship was negative in nature also capital structure showed a negative relation with company market value Study by Marietta (2012) in Kenya listed companies used multiple regression analytical models to measure the relationship between independent variables of institutional debt and institutional equity as capital structure variables against the dependent variables of ROA and ROE as firm performance variables and revealed that there is a negative relationship between total debt and firm performance. In terms of relationship between equity and firm performance, his study revealed that there is a significant positive correlation between return on equity (ROE) and total equity using Pearson correlation.

Moreover, empirical evidence was shown by Ratheepkanth (2011) in Sri-Lanka listed companies revealed negative relationship between capital structure and company profitability. The study by Kaaya (2013) about the relationship between capital structure and commercial bank performance in Nigeria concluded that the relationship between these two variables (capital structure and bank performance) was negative and their results were significant at 5% significant level.

Another study conducted by Shubita (2012), measured the relationship between capital structure and profitability of Jordan companies. The researchers used correlations and multiple regression analysis to measure the relationship between variables to reach the intended results. The researcher used ROE as performance variable against capital structure variables of short-term debt to Asset, Long term debt to asset, and total debt to asset as independent variables. The study results showed a negative relation between debt finance and profitability. Their findings implied that an increase in debt position is associated with a decrease in profitability of companies, thus the higher the debt the lower the profitability of the firm. The researcher used only one performance measure of ROE to come up with the conclusion. This study used two company performance measures of ROE and ROA to analyze their relationship with capital structure indicators.

Toraman (2013) examined oil and gas company in Turkey and discovered the negative relationship between short term debt to total assets, long term debt to total assets and return on assets (ROA). He also discovered no significant relationship between total debt to equity ratio and ROA. Researchers used regression models to measure the relationship between capital structure and company profitability using a sample of 28 manufacturing industries.

Another study by Ntogwa (2014) with his study on the influence of capital structure on working capital and growth opportunity of a firm in Nigeria, found that the growth opportunity of listed companies in Nigeria does not depend on the capital structure but depends on the investment opportunity available in that company. Feng (2013) in Sweden listed companies used regressions and correlations models to measure such relationship

and revealed the negative relationship between capital structure and corporate performance.

Badu (2012) targeted 7 listed banks in Ghana from 2000 to 2010 and tested the relationship between capital structure and banks performance. The regression result of his study indicated that capital structure is inversely related to performance of the listed banks in terms of return on equity. His study used one profitability measure of return on equity to come up with the study results, this study included return on assets as another indicator of company profitability.

Lovorskyi (2013) examined the impact of capital structure on firm performance in Ukraine using regression model and found that, firms leverage ratio had negative impact with performance indicator of return on asset (ROA) at -0.098 confidence level, leverage against earnings before interest and tax (EBIT) at -0.119 and leverage ratio against total productivity factor at -0.458. Other study by Zeitun (2007) in Jordan used a sample of 167 Jordan companies from 1989 to 2003.His study results indicated a negative relationship between firm performance indicator of return on asset with capital structure indicators of total debt to total assets, long term debt to total assets, short term debt to total assets and total debt to total equity.

Odita (2012) used regression and Pearson correlation to analyze the impact of capital structure on firm performance in Nigeria. He used performance measures of return on assets and return on equity while capital structure measures were debt ratios and controlling variables of asset turnover, firm size, age, asset tangibility and firm growth opportunity. His study results indicated a negative and significant relationship between performance measures of return on assets and return on equity against debt ratio.

Alawwad (2013) in Saudi Arabia, used regression technique to measure the relationship between the variables of capital structure against variables of firm performance and found that all levels of debt ratios had inverse relationship with firm performance indicators of return on asset (ROA), return on equity (ROE) and profit margin.

The second group of researchers measured the relationship between capital structure and company profitability and revealed the positive relationship between the measurable variables of their studies. Hughes (2013) listed firms in Ghana, discovered a significant positive relationship between short term debt and profitability, negative relationship between profitability and long-term debt. The overall results of the study revealed that Ghana firms listed in Ghana stock exchange depended on short term debt than long term debt. Uremagu (2012) Olalebe (2013) and Adesina (2015) in Nigerian companies, their studies revealed that profitability of Nigerian firms depends on capital structure components.

Another study was done by Abiodum (2012) on the effect of optimal capital structure on manufacturing firms' performance in Nigeria, used a sample of 10 firms from 2000 to 2009. Researchers used debt ratio as capital structure variable against company performance and found that there is a relationship between the distribution of debt ratio and corporate performance and their main conclusion was that the manufacturing industries were consistent with trade off theory. That means debt ratio has a positive relation with corporate performance.

Moreover Soyebo (2014) used performance variables of return on assets (ROA) and return on equity (ROE) and capital structure ratios of debt to equity and debt to asset ratios to analyze the relationship between the variables. Correlation coefficient and

regression techniques were used to test panel data of 10 companies from 2000 to 2011. His study results indicated that the relationship between capital structure and return on assets is not significant across all firms and an insignificant relationship was shown between return on equity and debt to asset ratio. However, the results showed the significant relationship between return on equity and debt to equity ratio for all firms. This justified that a highly geared firm tends to have high profitability.

Zuraidah (2012) in Malaysia, measured the relationship between the capital structure indicators of short-term debt, long term debts and total debts against performance indicators of return on assets and return on equity. Researchers used panel data of 58 firms from 2005 to 2010. The results of the study indicated that only short term debt and total debt had a significant relationship with return on assets (ROA), other capital structure variables had a significant relationship with return on equity (ROE).

Another study showing positive relationship was conducted by Priya (2013) who targeted listed trading companies in Sri-lanka, and analyzed variables using correlation method and come up with the conclusion that debt to asset ratio and debt to equity ratio of listed companies correlated with gross profit margin, net profit, ROCE and ROE at significant level of 0.05 and 0.1 their final conclusion was that, there was a positive relationship between capital structure and financial performance of listed companies in Sri-lanka. Mwangi (2014) targeted non-financial companies listed in Kenya and concluded that, financial leverage had a negative effect on performance as measured by return on equity of non-financial companies listed in the Nairobi stock exchange.

Jaffna (2013) analyzed the impact of capital structure on financial performance of the listed trading companies in Sri Lanka. He used company's data listed in Sri-lanka stock

exchange during 2006 to 2010 and came up with the following results. He used correlation analysis and revealed that debt asset ratio and debt equity ratio and correlated with gross profit margin, net profit margin, ROCE, ROA and ROE at significant level of 0.05 and 0.1 Finally their results concluded a positive relationship between capital structure and financial performance. Another analysis was conducted by Pouraghan (2012) who measured Iran companies using Pearson correlations and estimation of multiple regressions models to test independent variables of Debt ratios and controlling variables of firm size, firm age, asset tangibility and growth opportunities against dependent variables of return on assets and return on equity. He then discovered a strong negative relationship between debt ratios and performance measures. Moreover, researchers discovered a positive relationship between controlling variables and performance variables of the companies.

Other empirical studies have shown mixed results where some study variables show a negative relationship while others revealed the positive relationship. Goyal (2013) with his study on listed public sector banks in India, tested the study variables using regression analysis. The results of his study validated a strong positive dependence of short-term debt to capital with all profitability measures of ROA, ROE and EPS while long term debt to capital and total debt to capital had a negative relationship with return on assets (ROA), return on equity (ROE) and earning per share (EPS).

Mihael (2012) in listed firms in Romania, his results indicates that there was a contradictory as the delivered both in favor of the positive correlation and in favor of negative correlation between the capital structure and firm's performance. Due to this

conclusion, it was not clear whether capital structure influenced performance or not, for that case the further study on this relationship has to be conducted.

Abbasali (2012) in Tehran used Pearson correlation and multiple regression models to test the relationship between independent variables of debt ratios against dependent variables of return on asset (ROA) and return on equity (ROE). Researchers also used controlling variables of asset turnover, firm size, and asset tangibility and growth opportunity as other independent variables of the study. The results of the study indicated a negative relationship between debt ratio and financial performance. Also, the results indicated a significant positive relationship between asset turnover, firm size, and asset tangibility and growth opportunity with financial performance measures.

Study by Kipesha (2014) with his study on commercial banks in Nigeria, used fixed effect regression model with the help Housman test to measure the relationship between capital structure and banks performance. His results indicated a presence of significant negative relationship between total debt to equity and long-term debt to equity with bank cost efficiency and return on equity, something which implies the presence of negative trade -off between firm leverage and firm performance. The same study indicated a causal relationship between firm leverage and return on assets.

The other empirical studies based on capital structure have either supported or not supporting the earlier capital structure theories of Irrelevancy theory by Modigliani and Miller, Pecking order theories and trade off theories. Bundala (2012), on his study on investigating whether Nigeria Listed companies practice Pecking Order Theory, Agency cost theory or Trade off theory. His results of the study revealed that there is little support for Pecking Order Theory that predicts significant positive slopes for growth rate,

liquidity, dividend payout and asset tangibility variables and negative significant slope for profitability variables. These results show that there is a need to prove this relationship in Nigerian environment. The study by Naidu (2011) in South African companies his findings suggested that an increase in the usage of debt by a bank has some effect of increasing the profitability of that bank, but it was not the sole determinant of an increase in profitability. The findings were significant as it supported the MMII where a firm can increase its value by increasing its use of cheaper debt finance. The result of his study supports the Modigliani and Miller theory II that debt finance is the best approach that influences the increase of the firm's value. The proposed study will reveal the truth of this argument after the final analysis on the relation between the capital structure and profit of Nigeria listed companies.

Miglo (2010) with his study was about the implications of pecking order theory, trade off theory, signaling and market timing theory by listed firms. His empirical evidence confirmed that under trade off theory, the leverage of firms was inversely related to the expected bankruptcy costs. The implication on pecking order theory showed that there was a negative correlation between debt and profitability of the firms. Since the implication of two theories of trade off and pecking order theory are mostly related with the proposed study, then the researcher used the correlation results to approve or disapprove theories with the real behavior within the public listed companies in Nigeria.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This section of the study focuses on the research design, the population and sample of study, data sources, model specification and method of analysis.

3.2 Research Design

The research design for this study is ex-post facto, since it is quantitative in nature and will rely on secondary panel data obtained from the annual reports of the companies that were studied.

3.3 Population and Sample of the Study

The population of this study is made up of all the quoted oil and gas companies in Nigeria. Seven oil and gas firms were selected as the sample of the study based on convenient sampling method.

3.4 Sources of Data

The study used the secondary data and data were sourced from the yearly financial reports of oil and gas sector in Nigeria. Data were obtained from 2014 to 2023.

3.5 Model Specification

In light of the methodological knowledge gathered and empirical literature in our previous chapters, we specify a panel data multiple regression model. The model specified in this study is basically a foundation to a panel of seven (7) oil and gas companies quoted in the Nigerian Stock Exchange. Consequently, our model is shown thus:

return on equity (ROE), debt to total asset (DETA), debt to equity (DTE), equity to total assets (EQTAS), long term debt to total assets (LTDTA), and long term debt to equity (LTDTE)

ROE = f(DETA, DTE, EQTAS, LTDTA, LTDTE) 3.1

Where;

ROE = is return on equity. A proxy for financial performance

DETA = debt to total asset

DTE = debt to equity

EQTAS = equity to total assets

LTDTA = long term debt to total assets

LTDTE = long term debt to equity

Given the function generated in equation (3.1), the model is specified in this study to capture the relationships

$$ROE_{it} = \alpha_{it} + \alpha_1 DETA_{it} + \alpha_2 DTE_{it} + \alpha_3 DTE_{it} + \alpha_4 EQTAS_{it} + \alpha_5 LTDTA_{it} + \alpha_6 LTDTE_{it} + \delta_i + \gamma_t + U_t \quad (3.2)$$

Where *i* represents the country, *t* represents time, α represents the general intercept and U_t is the general stochastic error term. It should note that the model specified above is a panel regression model that takes the cross sectional heterogeneity among the data into cognizance. The use of seven (7) oil and gas companies quoted in the Stock Exchange Limited would definitely generate within-sample bias when OLS technique is applied in the estimation. Hence, a model that can capture such biases and endogenise them is employed. The panel model also include the random effects (or cross sectional) term (δ) and the fixed effects (or period specific) term (γ). These coefficients account for the variations across countries and over time period (Greene, 2004).

3.6 The Panel Data Regression

In this study, the panel regression technique is applied in the empirical analysis. A variety of different models for panel data are used in studies where heterogeneous effects are noticed within time series across space. In the panel regression method, if z_i contains only a constant term, then ordinary least squares provides consistent and efficient estimates of the common α and the slope vector β. In this estimation, two effects are highlighted:

Fixed Effects:

This fixed effects approach takes α_i to be a group-specific constant term in the regression model. It should be noted that the term "fixed" as used here signifies the correlation of c_i and x_{it}, not that c_i is nonstochastic.

Random Effects:

This random effects approach specifies that u_i is a group-specific random element, similar to ε_{it} except that for each group, there is but a single draw that enters the regression identically in each period.

The crucial distinction between fixed and random effects is whether the unobserved individual effect embodies elements that are correlated with the regressors in the model, not whether these effects are stochastic or not. In this study, we examine this basic formulation, and then consider an extension to a dynamic model involving the fixed and random effects. The Hausman test of randomness is used to determine the best effects model to be used.

CHAPTER FOUR

EMPIRICAL ANALYSIS

4.1 INTRODUCTION

This chapter presents the results, analysis and interpretation of the panel data collected for the purpose of testing the models developed in this study. The set of analysis in this

study comprises analyses to determine the impact of capital structure on the oil and gas firms in Nigeria. The analysis therefore involves the use of econometric methods in order to provide a rich background for the investigation. The econometric analysis extends the statistical analysis with the goal of performing the empirical analysis and obtaining estimated coefficients which are valid enough to test the hypotheses in the study. As explained in the previous chapter, the Panel Data Analysis method is employed in the econometric analysis.

4.2 EMPIRICAL TESTS AND RESULTS BASED ON PANEL DATA ANALYSIS

In this section, the results of the panel data estimates of the models specified in the previous chapter are reported and analysed. The focus of the analysis is actually on the goodness of fit statistics as well as the coefficients' results which will help provide the basis for the tests of hypotheses in the study. The series estimates the relationship between capital structure and oil and gas performance in Nigeria. The panel data estimation strategy adopted in this section presupposes that the biases in the pooled data could either come from cross sectional heterogeneity or time series (periodic) variations. Hence, the Hausman test of heterogeneity is initially conducted to determine the best effects model (random or fixed) to be adopted in the analysis. The result of the Hausman test is reported in Table 4.1 below. The Chi-square statistic value for the equations is not significant. From these results, if the p-value is significant the fixed effect model should be used but if the p-value is not significant the random effect model is employed. Hence, the best method to apply is the random effect model.

Table 4.1: Hausman Test for Effects

Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		6.2308	5	0.2844
Variable	*Fixed*	*Random*	*Var(Diff.)*	*Prob.*
DETA	1.8269	-0.5669	6.2148	0.3369
DTE	-46.5367	-41.6461	21.7476	0.2943
EQTAS	-2.4276	-3.4179	0.9667	0.3138
LTDTA	-4.9852	-2.7976	3.5876	0.2481
LTDTE	59.4808	50.8346	97.6753	0.3817

4.2.1 Capital Structure and Performance of Oil and Gas Performance

The result of the impact of capital structure on the performance of oil and gas variables such as

Return on equity (ROE), debt to total asset (DETA), debt to equity (DTE), equity to total assets (EQTAS), long term debt to total assets (LTDTA), and long term debt to equity (LTDTE) were reported in Table 4.2 below. The adjusted R squared value of 0.9383 indicates that over 93 percent of the systematic variations in the performance of oil and gas in Nigeria are explained by the explanatory variables. The F value of 210.8 is also high and easily passes the significance test at the 1 percent level. This shows the hypothesis of a significant relationship between financial performance and all the independent variables combined is significant.

The particular impact of each of the explanatory variables on financial performance is determined by considering the individual coefficients of the explanatory variables in terms of signs and significance. In the results reported, all the coefficients are negatively signed except for LTDTE which is positive.

The coefficient of debt to equity is negative and significant at the 1 percent level. This shows that financial performance decreases as the number of debt to equity increases. This is in line with economic theory. Debt is key to the performance of oil and gas in Nigeria. However, incessant increase in debt could lead to dilution.

The coefficient of DETA, EQTAS, LTDTA and LTDTE are not significant at the 5 percent level. This show that all these variables do not have any impact on the performance of oil and gas in Nigeria.

Table 4.2: Impact of Capital Structure on Deposit Money Banks' Performance

Variable	*Coefficient*	*t-Statistic*	*Prob.*
C	286.3694	0.8112	0.4203

DETA	-0.5669	-0.1368	0.8916
DTE	-41.6461	-3.9857	0.0002
EQTAS	-3.4179	-1.1106	0.2711
LTDTA	-2.7976	-1.5057	0.1371
LTDTE`	50.8346	1.8922	0.0630
R-squared	0.9428	*F-statistic*	210.8155 (0.0000)
Adjusted R-squared	0.9383	*D.W*	2.1319

Source: Eview 10 output 2025

4.3. Test of Hypotheses

The results obtained from the previous section are useful for conducting statistical testing of the hypotheses of the study. They also generate strong issues for discussion. In testing the hypotheses, focus is on the statistical significance of the relevant variables examined in the empirical analysis.

Hypothesis One

Debt to total asset has no significant impact on the financial performance of oil and gas in Nigeria. The result obtained from the estimate showed that the DETA is negative but not significant. Based on the t-test of significance for the variable, the t-value was not significant at the 5 percent level. Thus, we fail to reject the null hypothesis.

Hypothesis Two

Debt to equity has no significant impact on the financial performance of oil and gas in Nigeria. The result obtained from the estimate showed that the DTE is negative and

significant. Based on the t-test of significance for the variable, the t-value is significant at the 1 percent level. Thus, we reject the null hypothesis.

Hypothesis Three

Equity to total asset has no significant impact on the financial performance of oil and gas in Nigeria. The result obtained from the estimate showed that the EQTA is negative but not significant. Based on the t-test of significance for the variable, the t-value was not significant at the 5 percent level. Thus, we fail to reject the null hypothesis.

Hypothesis Four

Long term debt to total asset *has no significant impact on the financial performance of oil and gas in Nigeria.* The result obtained from the estimate showed that LTDTA is negative and not significant. Based on the t-test of significance for the variable, the t-value was not significant at the 5 percent level. Thus, we fail to reject the null hypothesis.

Hypothesis Five

Long term debt to total equity has no significant impact on the financial performance of oil and gas in Nigeria. The result obtained from the estimate showed that LTDTE is positive and not significant. Based on the t-test of significance for the variable, the t-value is not significant at the 5 percent level. Thus, we fail to reject the null hypothesis.

4.4. Discussion of Findings

The result of the regression shows that debt to equity is negatively significant. Debt is important to the growth of a firm. However, there should be a balance between equity

and debt. An incessant increase in debt reduces the control of equity holders as well as lead to dilution. The result showed that only equity to debt is significant in the oil and gas sector in Nigeria.

The other variables were not significant to the performance of the oil and gas sector in Nigeria.

CHAPTER FIVE

SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.1 SUMMARY OF FINDINGS

This study focuses on empirically estimating the relationship between capital structure and financial performance of oil and gas in Nigeria. Seven (7) quoted oil and gas firm were used in this study.

Six variables such as; return on equity (ROE), debt to total asset (DETA), debt to equity (DTE), equity to total assets (EQTAS), long term debt to total assets (LTDTA), and long term debt to equity (LTDTE) were used for the estimation. The data used ranges from 2014 to 2023 across 7 oil and gas firms in Nigeria. And the number of observation is (7 deposit oil and gas times 10 years) 70. This study used the panel regression technique. This implies that the 70 observations are pooled together before the regression is run, thus neglecting the time series nature and cross sectional nature of the data.

The Ordinary Least squares estimations were employed in the estimation of the models. Results from the empirical analysis show that there is significant relationship between capital structure variables and financial performance of oil and gas firms. Specifically, the following findings were made:

- That DETA does not have any impact on the performance of oil and gas firms in Nigeria.
- That DTE has a negative impact on the performance of oil and gas firms in Nigeria.
- That EQTA does not have any impact on the performance of oil and gas firms in Nigeria.

- That LTDTA does not have any impact on the performance of oil and gas firms in Nigeria.
- That LTDTE does not any impact on the performance of oil and gas firms in Nigeria.

5.2 RECOMMENDATIONS

Following the findings from this study the following recommendations are made:

i. That the top management of oil and gas firm should maintain an adequate capital structure in order to sustain it performance.

ii. That oil and gas firm's debt profile should be minimal to reduce equity holders' dilution.

5.3 CONCLUSION

This study shows that the sources of long term finance in the oil and gas sector is key to it sustained growth and profitability. And current data from 2014 to 2023 were used to examine the performance of oil and gas sector in Nigeria. The study showed that capital structure has effect on the performance of oil and gas sector in Nigeria.

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Regression Results

Dependent Variable: ROE
Method: Panel Least Squares
Date: 03/10/25 Time: 08:35
Sample: 2014 2023
Periods included: 10
Cross-sections included: 7
Total panel (balanced) observations: 70

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	133.1675	391.9991	0.339714	0.7353
DETA	1.826972	4.836391	0.377755	0.7070
DTE	-46.53677	11.44241	-4.067043	0.0001
EQTAS	-2.427684	3.232279	-0.751075	0.4556
LTDTA	-4.985231	2.653293	-1.878885	0.0653
LTDTE	59.48080	28.62544	2.077900	0.0422

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.948799	Mean dependent var	-82.09800
Adjusted R-squared	0.939088	S.D. dependent var	494.6931
S.E. of regression	122.0916	Akaike info criterion	12.60223
Sum squared resid	864568.8	Schwarz criterion	12.98768
Log likelihood	-429.0779	Hannan-Quinn criter.	12.75533
F-statistic	97.70813	Durbin-Watson stat	2.143955
Prob(F-statistic)	0.000000		

Dependent Variable: ROE
Method: Panel EGLS (Cross-section random effects)
Date: 03/10/25 Time: 08:36
Sample: 2014 2023
Periods included: 10
Cross-sections included: 7
Total panel (balanced) observations: 70
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	286.3694	353.0253	0.811187	0.4203
DETA	-0.566943	4.144375	-0.136798	0.8916
DTE	-41.64613	10.44898	-3.985666	0.0002
EQTAS	-3.417988	3.079108	-1.110058	0.2711
LTDTA	-2.797566	1.858045	-1.505651	0.1371
LTDTE	50.83459	26.86523	1.892208	0.0630

Effects Specification		
	S.D.	Rho
Cross-section random	0.000000	0.0000
Idiosyncratic random	122.0916	1.0000

Weighted Statistics			
R-squared	0.942759	Mean dependent var	-82.09800
Adjusted R-squared	0.938287	S.D. dependent var	494.6931
S.E. of regression	122.8922	Sum squared resid	966560.1
F-statistic	210.8155	Durbin-Watson stat	2.131967
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.942759	Mean dependent var	-82.09800
Sum squared resid	966560.1	Durbin-Watson stat	2.131967

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	6.230757	5	0.2844

** WARNING: estimated cross-section random effects variance is zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
DETA	1.826972	-0.566943	6.214841	0.3369
DTE	-46.536774	-41.646126	21.747625	0.2943
EQTAS	-2.427684	-3.417988	0.966718	0.3138
LTDTA	-4.985231	-2.797566	3.587632	0.2481
LTDTE	59.480805	50.834592	97.675277	0.3817

Cross-section random effects test equation:
Dependent Variable: ROE
Method: Panel Least Squares
Date: 03/10/25 Time: 08:37
Sample: 2014 2023
Periods included: 10
Cross-sections included: 7
Total panel (balanced) observations: 70

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	133.1675	391.9991	0.339714	0.7353
DETA	1.826972	4.836391	0.377755	0.7070
DTE	-46.53677	11.44241	-4.067043	0.0001
EQTAS	-2.427684	3.232279	-0.751075	0.4556
LTDTA	-4.985231	2.653293	-1.878885	0.0653
LTDTE	59.48080	28.62544	2.077900	0.0422

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.948799	Mean dependent var	-82.09800
Adjusted R-squared	0.939088	S.D. dependent var	494.6931
S.E. of regression	122.0916	Akaike info criterion	12.60223
Sum squared resid	864568.8	Schwarz criterion	12.98768
Log likelihood	-429.0779	Hannan-Quinn criter.	12.75533
F-statistic	97.70813	Durbin-Watson stat	2.143955
Prob(F-statistic)	0.000000		