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The Influence of Financial Structure on Profitability with Special Reference to Oil and Gas Firms in Nigeria

Echekoba Felix Nwaolisa[1] and Ananwude Amalachukwu Chijindu[1*]

[1]Department of Banking and Finance, Nnamdi Azikiwe University, Anambra State, PMB 5025, Awka, Nigeria.

Authors' contributions

This study was carried out in collaboration between authors EFN and AAC. Author EFN was responsible for the study's blueprint, wrote the first draft of the manuscript and vehemently scrutinized it from that time on. Author AAC managed the literature searches, sourced relevant data, performed the regression analysis and interpreted the results. Authors EFN and AAC read and approved the final manuscript.

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ABSTRACT

This study is an intent to determine the influence of financial structure on profitability with special reference to oil and gas firms in Nigeria. Ten (10) out of the fourteen (14) listed oil and gas firms in Nigerian Stock Exchange were selected. The financial data from 1993 to 2013 were collected from Nigerian Stock Exchange factbook of various issues as relevant. Variation in profitability albeit return on assets, return on equity, profit before tax and earnings per share were regressed on debt-equity amalgam and tax using the pooled ordinary least square, fixed effect and random effect models. After the estimation, results revealed that financial structure has negative influence on profitability of oil and gas firms measured by return on assets, return on equity, profit before tax and earnings per share. This provides credence to the pecking order theory of financial structure which states that firms prefer internal financing before resorting to any form of external funds. In view of

**Corresponding author: E-mail: amalision4ltd@yahoo.com;*

the negative influence financial structure has on profitability, we recommend that oil and gas firms in Nigeria should fund their operations with more of equity capital. Inevitably, oil and gas firms globally have been adversely affected by the falling oil prices with their revenues and profit on the decline and as such, borrowing from commercial banks, financial markets and other sources of external financing should be minimize due to high interest rates associated with such facilities.

Keywords: Financial structure; profitability; debt-equity amalgam; oil and gas firms.

1. BACKGROUND OF THE STUDY

The oil and gas industry is unique: It is subject to unceasing inspection and regulatory reforms from different agencies of the government. Nigerian Extractive Industry Transparency Initiative (NEITI) was voted the best implementing country among thirty nine member countries that have so far embraced the initiative across the world [1]. The oil and gas industry consists of two divergent refinement, one in the corporate setting and the other in the field. It can also be exceptionally lucrative at both the firm and investor level. In addition, the oil and gas sector differs from other industries in the way they are valued by the financial community [2]. A firm is valued for many reasons: to determine its ideal corporate structure, to gauge its appropriate level of capital funding, or to determine its appropriate price when it is part of a merger or acquisition transaction. Establishing a firm's value is important because it allows accurate assessment of its ability to handle debt, estimation of anticipated return on investment, and approximation of its market value [2].

While existing oil and gas asset holders have shown significant interest in the possibility of monetizing their assets, a large number of license holders do not understand, or are unable to realize the value of the assets in their possession. This inability to access value (through a liquid and active exchange) has led to a depressed market value of assets, an undeveloped mergers and acquisition market, and inadequate representation of the oil and gas sector on the Nigerian Stock Exchange. The lack of access to funding has limited the sector's growth potential, starved local pension funds, and investors of upstream, oil sector growth investments, and has limited the sector's impact on the Nigerian economy. This results, albeit, indirectly, in the overheating of the existing assets/sectors that are represented in the markets.

The discovery of oil in Nigeria in the mid-1960s ushered in a window for great export of oil at the detriment of agricultural materials which was the traditional export products of the country. As at today, over 90% of Nigeria government revenue is dependent on oil export. This has vehemently affected the country's revenue due to the declining oil price in the international market which started in July. 2014. Due to the cost associated with operation in oil and gas in Nigeria, many commercial banks are not willing to lend dominantly to oil and gas exploration as a means of enhancing their liquidity position. Thus, many oil and gas firms are dependent on retained earning which is the least expensive means of financing. However, in Nigeria many most oil and gas firms, particularly indigenous firms are not buoyant to finance major investments from retained earnings or equity capital. According to the [1], only seven (7) out of the over twenty (20) commercial banks in Nigeria were considered as top banks in oil and gas finance. These bank are Diamond bank, Fidelity bank, First bank, Skye bank, Access bank, Stanbic IBTC and Heritage bank. The Nigerian National Petroleum Corporation (NNPC) is indebted to some oil companies it entered into joint venture due to fund constraint. The rate at which commercial banks lend to oil and gas firms in Nigeria has risen as a result of the adverse effect of the national currency devaluation by the Central Bank of Nigeria (CBN) starting from 2015. Consequently, major oil players in the country who are dependent on bank credit are now having difficulty in obtaining new loans while some resort to loan restructuring.

Financial structure refers to the way the firm finances its assets. It is the entire left-hand side (liabilities plus equity) of the balance sheet which represents all the long-term and short term sources of fund [3]. [4] made a distinction between capital structure and financial structure. According to him financial structure comprises the different methods a firm applies to raise funds for its activities while capital structure is the ratio of long-term debt and equity. Many scholar are of the opinion that debt financing is more preferable to internal financing due to the benefit of tax associated with it. Since the interest a firm

pays for debt usage is tax deductible, the firm can comfortably reduce its tax obligation for any given period which will result in higher net income within the period. The major issue with debt is the premise that the firm have to pay back the debt as well as interest charges thus, subjecting the firm to financial distress. On the contrary, financing through shareholder fund will exclude the firm from the advantage link with taxation as dividends are not tax deductible. Furthermore, the firm does not have interest obligation if it resort to equity financing.

1.1 Statement of the Problem

The oil and gas industry plays a critical role in the Nigerian economy. Following the discovery of oil in Nigeria in 1956 and the subsequent collapse in agricultural production, crude oil sale became the mainstay of the economy. About 90 percent of government total revenue is accounted for by oil export. Nigeria is among the top oil and gas producer in the world. Empirical studies on the influence of financial structure on profitability of oil and gas industries in Nigeria have yielded conflicting results. [5] found a positive link between earnings per share and leverage ratio on one hand and positive link between dividend per share and leverage ratio on the other hand of Nigeria petroleum industry. [6] in testing the validity of optimal financial structure in Nigerian listed oil firms, provides a confirmation of static trade-off theory which holds that highly profitable firms uses more debt because there is a little risk of bankruptcy and the tax shield is substantial. The findings however, contradict the assertion that big firms with more tangible assets would use more debt because blue chip firms are able to issue even naked promissory notes or commercial papers as subscribers rely on their profitability and stability.

Improved performance of oil and gas industries in Nigeria is very important due to their positive contribution to government revenue especially with regard to employment. The factors that influence their profitability are heterogeneous but include their access to debt finance evident in their financial structures. The nexus between financial structure and profitability has not yet been irrefutably recognized. Studies on the influence of financial structure on profitability with special reference to oil and gas industries in Nigeria are minimal. To this effect, this study aimed at bridging the lacuna and applying secondary data to analyse the influence of financial structure on Nigeria oil and gas industries profitability for a period of twenty one year's 1993-2013.

1.2 Objectives of the Study

The primary objective of this study is to determine the influence of financial structure on profitability with special reference to oil and gas firms in Nigeria. Unequivocally, the study will:

1. Determine the influence of debt-equity amalgam on return on assets of oil and gas firms in Nigeria.
2. Ascertain the influence of debt-equity amalgam on return on equity of oil and gas firms in Nigeria.
3. Assess the influence of debt-equity amalgam on profit before tax of oil and gas firms in Nigeria.
4. Evaluate the influence of debt-equity amalgam on earnings per share of oil and gas firms in Nigeria.

In consonance with the objectives of this study, the following directional hypotheses are formulated.

1. Debt-equity amalgam has no significant influence on return on assets of oil and gas firms in Nigeria.
2. Debt-equity amalgam has no significant influence on return on equity of oil and gas firms in Nigeria.
3. Debt-equity amalgam has no significant influence on profit before tax of oil and gas firms in Nigeria.
4. Debt-equity amalgam has no significant influence on earnings per share of oil and gas firms in Nigeria.

2. REVIEW OF RELATED LITERATURE

2.1 Conceptual Framework

Financial structure is a blend of debt and equity a firm uses to fund and finance its operations. Financial structure refers to the way a corporation finances its assets through some combination of equity, debt, or hybrid securities [7]. If a firm has completed an initial public offering and a bond offering, we could therefore say that firm's financial structure includes debt and equity. Bank loans, preferred stock, retained earnings and working capital might also be part of the firm's financial structure. In many cases, discussions of financial structure include references to debt-to-equity ratios, which are one

of several ratios that measure the relative weight of different types of capital. One of the major aim of strategic financial management is the determination of an optimum financial structure. Taking into consideration the irresolute nature of optimal financial structure, financial managers are faced with the difficulty of determining debt and equity amalgam. If firm's manager failed to manage its sources of fund properly then it is reasonable to expect that the firm's financial structure would affect firm's growth and profitability which will further resort to financial distress and finally firms can go bankrupt [8]. But determining the precise optimal financial structure is not a science, so after analysing a number of factors, firms establish a target financial structure which it believes is most favourable [9]. Different types of capital impose different types of risks on a firm. For this reason, financial structure affects the value of a firm, and therefore much analysis goes into determining what a firm's optimal financial structure is. The [10] propositions developed by financial theorists Franco Modigliani and Merton Miller address this question.

Profitability is the ability to earn profit from all the activities of an enterprise. It indicates how well management of an enterprise generates earnings by using the resources at its disposal. In other words, it is the ability of a firm to earn profit. The word "profitability" is made up of two words "profit" and "ability". The word "profit" represents the absolute figure of profit but an absolute figure alone does not give an exact ideas of the adequacy or otherwise of increase or change in performance as shown in the financial statement of the enterprise. The word "ability" reflects the power of an enterprise to earn profits, it is called earning performance. Earnings are an essential requirement to continue the business. So we can say that a healthy enterprise is that which has good profitability. According to [11], profitability is the relationship of income to some balance sheet measure which indicates the relative ability to earn income on assets employed. The most effective tool of analysis of profitability is ratio analysis. Ratios revealing profitability are popularly called profitability ratios. Profits may be derived either form operating or non-operating activities. In this present study, emphasis is laid upon profits resulting from operating activities. The profitability from such activities can be analysed as profit before tax or after tax, return on assets, return on equity, earnings per share, dividend per share, net profit margin, net assets per share, etc.

2.2 Theoretical Background

The decision of improving the level of debt-equity ratio, no matter if it is a small firm or a multinational corporation, has always been an important issue for the firm's financial managers. [12] noted that for small firms the possibilities may include the owners' equity, some amount of money that is due for payment to suppliers or loans from the bank. In case of multinational corporations, possibilities vary from short and long term bonds, stock market and loans in different currencies. According to [10], a firm's sources of financing are irrelevant in determining the value of such firm. The market value of a firm is determined by its earning power and by the risk of its underlying assets, and that its value is independent on the way it chooses to finance its investments or distribute dividends [10]. [10] proposition of financial structure has been applied to boost economic and financial activities. However, its use also resulted in increased complexity, lack of transparency, and higher risk and uncertainty in those activities. The global financial crisis of 2008, which saw a number of highly leveraged investment banks fail, has been in part attributed to excessive leverage ratios [12].

[12] while acknowledging Harris and Raviv (1991) noted that the influence of asymmetric information resulted in the development of other financial structure theories on the basis of the needs for public firms to disclose personal information and reduce the effect of adverse selection. Pecking order theory of financial structure which was traced to [13] which states that firms have a preferred hierarchy for financing decisions. Firms will borrow instead of issuing equity when internal cash flow is not sufficient to fund capital expenditure. The highest preference is to use internal financing before resorting to any form of external funds. Internal funds incurs no flotation costs and require no additional disclosure of financial information that may lead to a possible loss of competitive advantage. In the trade-off theory, the firm is viewed as setting a target debt-equity ratio and gradually moving towards it. According to the trade-off theory, a firm pursues a debt level that strike a balance between benefits associated with additional debt and costs of probable financial difficulty. Put differently, a firm ideal financial structure will have to do with the trade-off between the tax benefit of debt usage and diverse costs relative to leverage. In particular, financial structure moves towards targets that reflect tax rates,

assets type, business risk, profitability and bankruptcy costs [14]. [15], the proponent of the agency cost theory, put forward that firm's financial structure is dogged by agency costs, which includes the costs for both debt and equity issue. The costs related to equity issue may include: the monitoring expenses of common stock holders, the bonding expenses of the agent (the manager), reduced welfare for principal due to the divergence of agent's decisions from those which maximize the welfare of the principal. Hunsaker (1999) as cited by [14] observed agency costs of debt to include the opportunity costs caused by the impact of debt on the investment decisions of the firm; the monitoring and bond expenditures by both the bond holders and the owner-manager; and the costs associated with bankruptcy and reorganization. The conflicts of interest between owners of firms and managers results in agency cost problem.

2.3 Empirical Reviews

[16] empirically examined the relationship between financial structure and corporate performance of public listed oil and gas firms in Malaysia. For this, unbalanced panel data set of 12 oil and gas companies was tested using panel data regression technique over the period of 2003-2013. Financial structure, the independent variable was measured by three proxies namely short-term to total debt, long-term to total debt and total debt to total asset. While corporate performance was measured by the company's return on equity, return on asset and gross margin. The finding showed that financial structure is negatively related to firm's return on equity, suggesting that an increase in the firm's debt level would negatively affect its shareholders return. The effect of firm's debt level with return on assets and gross margin on the other hand, shows no impact and appears to be insignificant.

[17] determined whether there is a relationship between financial structure and firm performance of U.S. firms in the Industrial, Healthcare, and Energy Sector. They pooled the data from each sector to give us a sample of 300 observations. Overall, they found that financial structure and firm performance has a primarily negative relationship, depending on the variable on which firm performance is proxied with. Financial structure appears to have a negative relationship with return on assets, operating return, and profit margin; and it is statistically significant. This suggests that taking on more debt will result in a negative impact on return on assets, operating return, and profit margin.

[6] in testing the validity of optimal financial structure theory in Nigerian listed oil firms investigated the determinants of capital structure in Nigerian oil industry. Six of the ten listed firms whose reports were regularly published over the period 2005-2012 were selected for the study. They were Oando Oil, Mobil Oil, Total Oil, Mrs Oil, Con Oil and Eterna Oil. Pooled Ordinary Least Square, Fixed and Random Effect Model were employed for analytical purpose while T-test, F-test and Durbin Watson test were carried out for reliability. From the findings of the study, it was shown that the profitability, age, size but tangibility are significant in determining the financial structure of Nigerian oil firms. The study provides a confirmation of Static Trade-off Theory which holds that highly profitable firms uses more debt because there is a little risk of bankruptcy and the tax shield is substantial.

In effort to answer the question on whether retained earnings is determined by financial structure in the oil and gas sector in Nigeria [19] used secondary data casing the period 2002 to 2011. The analysis was carried out using simple statistical tools like Correlation Co-efficient, F-test, Co-efficient of Determination and Regression Analysis. The study revealed that retained earnings is strongly and positively determined by borrowing or debt; that share capital positively determines retained earnings; and that retained earnings had significant relationship with debt and share capital over the period of study.

[18] analysed the influence of financial structure on firm performance in Nigeria from 2003 to 2012. Using data from six petroleum firms in Nigeria namely: Chevron Plc, Conoil Plc, Eterna Oil plc, Mobil Oil Plc, Oando Plc and Total Nigeria Plc. The study carried out a panel data analysis by using fixed effect estimation. The study found that a negative relationship exists between leverage and firm performance and the study established that a positive a relationship exists between three of the explanatory variables (firm's size, tax and lagged return of asset) and firm performance.

[12] evaluated the influence of financial structure on financial performance of the largest oil and gas firms in Europe. Microsoft Excel 2007 was used to analyse the data collected. To determine the relationship between the value of the firm and

the factors associated with its capital structure, the firm's stock price in the stock market was taken as the dependent variable, with the factors influencing the ratio of borrowed funds in the financial structure, the size of the firm and the taxes paid by firms. The study revealed that the size and value of leveraged financial structure have significant effect on the market value of the shares of oil firms.

[8] empirically assessed the effect of financial structure on financial performance. Two main sets of variables were used: For profitability, return on assets as the ratio of net income to total assets, and return on equity as the ratio of net income to total shareholders' equity were adopted as a proxy for financial performance; and to indicate financial structure, short-term debt, long-term debt, total debt, debt to equity ratio, and firm's size were used. A sample of 30 Energy American firms for a period of nine years from 2005 – 2013 were considered. Secondary data were collected from financial statements which were taken from Mergent online. The data were analysed by using Smart PLS (Partial Least Square). Multiple regressions indicated that 10% of return on equity and 34% of return on assets were predicted by the independent variables. Findings also presented that the total debt has a significant negative impact on return on equity and return on assets, while size in terms of sales has significantly negative effect only on return on equity of the American firms. However, a short debt significantly has a positive influence on return on equity. An insignificant either negative or positive relationship was observed between long term debt, debt to equity and size in terms of total assets and profitability.

[20] evaluated the determinants of financial structure in oil and gas firms listed on Karachi Stock Exchange of Pakistan on a data for the period of 2006 to 2011. Multiple regression technique was used to analyse the relationship between dependent variable (Leverage) and independent variables (Firm Size, Tangibility of Assets, Profitability, and Sales Growth). They concluded that all the independent variables have significant impact on the balance of leverage. The findings also suggests that firm size, tangibility of assets and profitability having positive relationship with leverage. On the other hand sales growth has negative relationship with leverage.

[7] ascertained the impact of financial structure on the profitability of petroleum sector of Pakistan, while controlling the size of the firm. A total of 12 firms were selected randomly for the study and took ten years' data from 2001 to 2010. Regression analysis was conducted and results showed that there is a significant and positive impact of financial structure on the profitability of the petroleum sector. In overall analysis, financial structure has the significant analysis but the individual analysis of every firm was not significant because every firm has their own financial structure. Overall, profitability depend on the financial structure of firms.

[20] studied the determinants of financial structure of oil and gas sector of Pakistan. While analysing the effect of profitability, tangibility, size and liquidity on financial structure decisions of the listed firms in oil and gas sector of Pakistan, they found that profitability is the only variable that showed negative relationship against the dependent variable leverage, whereas the other three variables, liquidity, size and tangibility have positive relationship with leverage.

[5] looked into the impact of financial structure on corporate performance in the Nigerian Petroleum Industry. The study employed panel data analysis by using Fixed-effect estimation, Random-effect estimation and Maximum likelihood estimation. It was found out that there was positive relationship between earnings per share and leverage ratio on one hand and positive relationship between dividend per share and leverage ratio on the other hand.

2.4 Why Oil Price Deceases?

The price of oil depreciated from $110 per barrel in June, 2014 to about 33.36 per barrel as at Friday 12th February, 2016. The decrease in oil price has been attributed precisely to existence of the following factors:

2.4.1 Forces of demand and supply in the international oil market

No individual country that can control activities in the international market as it is determined by the forces of demand and supply. The US and European countries who are heavy users of oil have reduced demand for such commodity. The activities of US oil frackers have nearly doubled oil production in US. The exploration of alternative sources of energy, particularly shale oil have led to decline in demand of oil by many developed countries of the world most especially in Europe.

2.4.2 Organization of Petroleum Exporting Countries (OPEC) reluctance in cutting down production quota of its members

OPEC has deliberately refused to cut down the oil production quota of its member as it has done in the past to hold up oil prices thus, leading to excessive supply of oil in the market. In the last OPEC general meeting held in January 2016, Nigeria Minister of state for petroleum, Dr Ibe Kachukwu has requested for an extra ordinary meeting of OPEC to discuss the continued decrease in oil price. However, his push for such an emergency meeting was opposed by the United Arab Emirates.

2.4.3 Lifting of Iran's nuclear sanction

The lifting of nuclear sanction imposed on Iran following the implementation of the nuclear deal signed between Tehran and world powers in mid-July, 2015 is a contributing factor to decrease in oil price in the international market. On the 14th of February, 2016, Islamic Republic News Agency (IRNA), the Iran's official news agency said the country crude oil shipment to Europe for the first time it reached a landmark following nuclear deal with world powers last month. According to the IRNA report of 14th February, 2016, the Iranian Deputy Oil Minister, Rokneddin Javadi noted that the shipment was the first after five years. He called the crude oil shipment to Europe as "a new chapter" in the Iranian Oil Industry.

2.4.4 Dominancy in OPEC crude oil supply by Saudi Arabia

The Saudi Arabia has continued to dominate the market in terms of crude oil supply as it almost dependent on oil revenue just like Nigeria. Saudi Arabia is the largest OPEC producer of crude oil. Saudi Arabia has resisted call for OPEC member's production quota to be cut in a bid to continue its dominancy in crude oil supply in the market.

2.4.5 High influx of crude oil in the market attributed to Iraq, Libya and Angola

Regardless of the deteriorating security situation in Iraq coupled with political and humanitarian crisis, Iraq's oil production has magnificently grown during the last five years. In July, 2015, Iraq's oil production climbed to an all-time high of 4.18 million barrel per day, Iraq is the second largest OPEC supplier of crude oil after Saudi Arabia. With the ouster and death of Dictator Muammar Gaddafi in 2011, Libya has continued to increase the supply of oil in the international market. In December, 20015, representatives of Libya's two rival government signed a power sharing agreement which was brochure by United Nation for the formation of a national unity government by mid-January, 2016. This has been seen as an essential to stimulating crude oil production in Libya. In spite of the oil price falling below $40 US dollars per barrel, the Chairman of Libya's state run National Oil, Mustafa Sanallah in January, 2016 observed that Libya has advantage over more expensive oil producers because it generally cause less than $10 US dollars to extract a barrel of crude oil in Libya. As at December, 2015, Angola is the second largest oil producer in Sub-Saharan Africa and one of the biggest supplier in the world both in US and China. Oil production has continuously increased in Angola since 2003. According to OPEC report of December, 2015, Angola oil production is about 1.75 million barrel per day and Angola remains one of China's leading supplier of crude oil.

2.5 Effect of Decreasing Oil Price in Nigeria

2.5.1 Depreciation/devaluation in the value of the Nigeria Naira against other currencies of the world

Nigeria is the largest exporter of crude oil in Africa and earns over 90% of her foreign exchange from oil. With the decreasing oil price, the Nigeria government through the Central Bank, in an effort to ease the consequences of falling oil price in the economy, devalued the national currency from ₦155 to ₦168 against one US dollar on 25th November, 2014. Barely three months of devaluing the Naira in November 25th, 2014 the Central Bank of Nigeria again devalued the Naira from ₦168 to ₦198 against one US dollar in February, 2015. However, from October, 2015 till date, they have been suggestion from various stakeholders not to further devalue the Naira with regards to decreasing oil price. The president of Nigeria, Muhammadu Buhari during a during a presidential media chat on 30th December, 2015 ruled out any further devaluation of the national currency.

2.5.2 Fall in federal government revenue

The revenue accruing to the federal government of Nigeria from crude oil and gas has declined within this period of falling oil price in the global oil market. According to the Nigeria Extractive Industry Transparency Initiatives, the total

revenue from oil and gas declined by 84.67% from $30 billion (₦6.0 trillion) in 2012 to $4.6 billion (₦920 billion) in 2015. The Nigeria National Petroleum Corporation (NNPC), the Nigeria oil firm reported that revenue from oil and gas dropped by $150.4 million (₦30.01 billion) between October and December, 2015. Based on the report of the NNPC oil and gas revenue reduced from $420.3 million (₦84.1 billion) in October to $269.9 million (₦53.98 billion) in December, 2015.

2.5.3 Inability of indebted States in Nigeria to service debt

Some states in Nigeria may not service the interest payment on loan facilities granted to them via various outlets. The internal generated revenue of most states in Nigeria are very low to cater for their recurrent and capital expenditure thus, relying on the monthly allocation from the federal government (government at the centre) which is dependent on oil exportation.

2.5.4 Reduction in Nigeria external reserve

Nigeria external reserve has reduced from $34.493 billion in January, 2015 to $29.342 billion as at December, 2015. The Central of Nigeria has dipped into the reserve to cushion the drainage of forex in the parallel market as a result of significant reduction in forex inflow into the market occasioned by declining oil price. In an attempt to further avoid depleting of the external reserve and strengthen the value of the Naira against other currencies of the world, the Central Bank in 2015 officially stopped the sale of US dollar for importer of 41 items. Sequel to the restriction on certain items, commercial banks in Nigeria banned the use of ATM (electronic card payment) card by Nigerians abroad.

2.5.5 Budget implementation

On 22nd December, 2015, the president of Nigeria presented a 2016 budget of N6.08 trillion to a joint session of the national assembling comprising of N1.8 trillion and N4.28 trillion for capital and recurrent expenditure respectively. The projected revenue from crude oil was N820 billion, deficit finance of N2.22 trillion, benchmark of $38 dollars per barrel and a daily production of 2.2 million barrel production per day. With the price of oil falling below $38 dollars per barrel, implementing the budget effectively becomes a problem. The president, Muhammadu Buhari has rightly acknowledge the decreasing oil price as a huge challenge as evident on its effect on consumption level as both private and public sector workers struggles to meet their salary and other related obligations. As a result of decreasing oil price, the projected deficit financing in the 2016 budget is expected to expand from N2.22 trillion to about N2.59 trillion which will change the capital-recurrent expenditure components of the budget as more money will be set aside for servicing of debt.

2.5.6 Diminution in deep-water projects in Nigeria

With decreasing price of oil, the revenue of oil firms as well as their corporate social responsibility would be affected adversely. Major deep water projects will be stalled as they are very expensive. Drilling and exploration of oil wells for export in international markets by oil firms will be reduced due to the cost-benefit analysis inherent in the process.

2.5.7 Retrenchment of oil workers

Due to the fact that many oil firms may not have the enthusiasm to drill oil well for profit, there is the possibility that they may retrench their workers to be inundated. On the 22nd January, 2016, National Union of Petroleum and Natural Gas Workers (NUPENG) called on the federal government of Nigeria to stop Chevron and Shell Petroleum Development Company (SPDC) from extending the planned sack of 18,500 workers globally to Nigeria. To add to this, on the 12th February, 2016, the Nigeria Employer's Consultative Association disagreed with the Minister of Labour and Productivity, Dr. Chris Ngige for instructing oil firms not to ask their workers.

2.5.8 High inflationary trends

It is crystal clear in Nigeria that the devaluation of the national currency in November, 2014 and February, 2015 as a result of decreasing oil price have increase inflation level in the country. Goods that are imported are more expensive consequent to the fact that Nigeria import dependent. On the other hand, the local prices of goods and services are also getting higher.

2.5.9 State and local government inability to pay workers' salaries as at when due

The Thirty six states governors from a crucial meeting on the 19th November, 2015 said they cannot no longer pay the ₦18, 000 minimum

wage to workers due to poor state of the economy. They observed that the dwindling oil prices has drastically affected their monthly allocation from the federal government thus, negatively impacting on the state's financial status and capability to pay workers' salaries as it should be based on terms of engagement of workers into the various state civil service.

2.5.10 Reduction in local pump price of petrol

The federal government on 29th December, 2015 reduced the official pump price of petrol from N87 per litre to N86 per litre by Nigeria National Petroleum Corporation retail stations while N86.5 for other oil marketers in the country. This petrol price reduction became effective on 1st January, 2016. The price template was developed by the Petroleum Product Pricing Regulation Agency (PPPRA) and is expected to last for three months that is, from 1st January, 2016 to 31st March, 2016. However, it is subject to upward or downward review pending the elapse of the current price template.

2.6 Why Nigeria Oil Firms do not have High Capital

2.6.1 Cost of finance

In Nigeria, the interest charged on bank loan goes within the range of 25% to 30%. This rate is very high coupled with the effect of other macroeconomic variables like inflation and exchange rate; security in the oil producing region, oil theft and pipeline vandalism. Most oil and gas firms who accessed this loan were not able to repay leading to restructuring of the facilities granted. The cost of finance may take up to or more than 10% of firm's gross revenue. For instance, from the analysis of the 2013 annual report and accounts of Con Oil Plc, Forte Oil Plc and MRS Oil Plc, finance cost were 13.22%, 14.87% and 16.43% of their respective gross profit. The [21], in its Statistical Bulletin for the second quarter of 2015, put the debts owed the banks by upstream oil and gas services companies at ₦1.147tn, up from ₦1.027tn and ₦1.099tn as of May 2015 and December 2014, respectively.

2.6.2 Poor risk management practices

The evaluation and handling of issues relating to risk management by oil firms in Nigeria is poor. Management most time ignore some relevant yardsticks when making decision on profitability of projects. These yardsticks are expected to position the projects in order of revenue generation and capital requirements. Chosen most economically feasible project in the midst of other capital opposing projects is not strictly adhered to.

2.6.3 High remuneration of directors

The remuneration of both executive and non-executive directors of most oil firms are high in relation to their performance. The director's compensation, bonuses and pay outs to retiring or departing directors are considerable very high in comparison to other staff in the firms. All these bogus packages of directors are from their profit without having much regards for retaining earnings.

2.6.4 Administration and distribution expenses

In the present of deteriorating infrastructural facilities coupled with corruption in the system, expenses incurred by oil firms through distribution and administration are very high compared to the revenue generated from operation. It goes up to as high as 70% of the gross revenue. In 2013, Con Oil Plc administration and selling expenses gulped 76% of its gross profit. Sometimes, the distribution and administration expenses a firm will encounter in the course of a project will be even be higher than the revenue expected from project. For example, at the end of accounting period of 2013, Forte Oil Plc and MRS suffered loss in operating activities. The cost of distribution and administration were more than the gross profit. The distribution and administration cost for Forte Oil Plc and MRS in 2013 was 100.90% and 135.91% of gross revenue respectively.

2.7 Challenges in Nigeria Oil and Gas Industry

2.7.1 National petroleum corporation indebtedness to international oil companies

NNPC has not been able to effectively honour its obligations with international oil companies through joint venture partnership. With the deteriorating oil price, the revenue from oil export is not adequate to sufficiently service international oil company's obligation and to remit to federation account. The November, 2015 statement of account and operation of the NNPC

depicts that NNPC was only able to pay $3.395 billion out of $6.774 billion it owed to international oil companies. The statement of account and operation also showed that from April to November, 2015, NNPC has not remitted any money to Nigeria federation account.

2.7.2 Frequent changes in the management structure of the Nigeria national petroleum corporation

From the inception of NNPC in 1977 till date, there have been some changes in the management structure. The latest being that of August, 2015 when the number of directorate was reduced to 4 from 8 as well as the reduction of top management personnel from 122 to 83. Mr Odein Ajumogobia, a former minister of petroleum resources on 12th February, 2015, asserted that he encountered four NNPC group managing directors between July 2007 and March 2010. He also stated that the Department of Petroleum Resources (DPR) has had 6 DPR directors in just seven years.

2.7.3 Oil pipeline vandalism

The effect of pipelines vandalism cannot be over emphasized. It has resulted in huge loss of revenue to both the government and oil firms operating in the country, oil spillage and consequent environmental degradation. The NNPC 2014 Annual Statistical Bulletin released on 1st July, 2015 revealed that N59.597 billion revenue was lose to pipeline vandalism. Furthermore, 3,700 cases of pipeline vandalism were recorded on NNPC pipelines.

2.7.4 Oil theft

The incidence oil theft is very alarming especially when compared to other countries of the world such as Russia, Iraq, Mexico and Indonesia plagued by oil theft. Over the years, thieves have been steeling oil from pipelines and selling to illegal refineries to make money. The government has been painstakingly efforts to combat oil theft. Recently, security agencies have cracked down oil thieves in oil producing areas and have destroyed illegal refineries located within the Niger Delta region. On 2nd September, 2015, the Commander of 2 Brigade, Nigeria Army, Portharcourt, Brigadier General Stevenson Olatunji, told News Agency of Nigeria (NAN) that the Nigerian Army uncovered a massive illegal oil bunkering site at the Makoba Beach in Port Harcourt, Rivers State.

2.7.5 Militancy in oil producing region

Militant activities in the oil producing region negatively affect the oil exploration. In 2009, militancy activities were at its peak forcing many oil firms to shut down operation. However, with amnesty programme of the government in 2009, insurgency in the region was reduced. Increasing militant activities would further compound Nigeria revenue loss coupled with dwindling oil price. On 9th October, 2015, a Shell Petroleum Development Company facility was attacked by militant. The Nigerian National Petroleum Corporation (NNPC) on 20th January, 2016 shutdown the refineries in the southern city of Portharcourt and the northern city of Kaduna due to a lack of supply caused by attacks on oil pipelines by militants.

2.7.6 Ageing assets

NNPC operations have been limited by inadequate finance. NNPC have not been able to meet its financial responsibility to joint venture partners for replacement of ageing and dilapidated oil facility, particularly pipelines and depots many of which have long passed their useful life thus, impacting on industry efficiency reflected by high operating cost and pollution of environment within which the facility is domiciled.

2.7.7 Petroleum industry bill

In order to carry out reforms in oil and gas sector of Nigeria economy, the Petroleum Industry Bill became necessary. Since it was introduced first in the national assembly in 2009, legislature has been at loggerhead with each other as it divided the interest of legislatures into south and north agenda. It is of the believe that this present national assembly under leaderships of Sen. Dr. Bukola Saraki and Hon. Yakubu Dogara for senate and house of representative respectively will pass it into law before the tenure expiration in May 2019.

2.7.8 Corruption

The rate of corruption in Nigeria oil and gas sector is terrible. [22] while acknowledging Obioma (2012) highlighted policy, administrative, commercial and grand corruptions as types of corruption in the oil and gas sector. During the national assembly probe of subsidy in 2012, a lot of corrupt activities was uncovered and oil many oil firms in Nigeria was indicted. Farouk Lawan, a then legislature was accused of collecting $620,000 bribe from Femi Otedola to remove his

company Zenon petroleum from list of indicted firms in subsidy regime. In 2015, Chinedu Okoronkwo, president of Independent Petroleum Marketers Association of Nigeria (IPMAN) stated that the country's oil and gas sector accounts for about 80% of corrupt cases in Nigeria.

3. METHODOLOGY

The data for this study were gotten from the published annual reports and accounts of ten (10) oil and gas firms listed on the Nigerian Stock Exchange (NSE), which were collected from the Nigerian Stock Exchange (NSE) fact book of various issues as relevant. The oil and gas firms are Capital Oil Plc, Con Oil Plc, Eterna Oil Plc, Forte Oil Plc, Japaul Oil and Maritime Service Plc, Mobil Oil Nigeria Plc, MRS Oil Nigeria Plc, Navitus Energy Plc, Oando Oil Plc and Total Nigeria Plc. This signifies 71.43% of oil and gas firms listed in Nigerian Stock Exchange.

3.1 Study Period and Variables

The period 1993 to 2013 was carefully chosen for this study. This is on the premise that it would provide for a comparatively long, recurring heathy equilibrium period, for which sufficient financial data of various firms would be accessible. Return on Assets (ROA), Return on Equity (ROE), Profit before Tax (PBT) and Earnings per Share (EPS) are the dependent variables signifying profitability indices of firms. Debt-Equity Amalgam (DEA) and Tax are in independent variables. Debt-Equity amalgam represent the financial structure while tax is a control variable capable of influencing profitability of firms.

3.2 Model Specification

For the purpose providing a robust empirical evidence with respect to the objectives of this study, we adopted the model of [19] but with slight modification. In their study on the effect of financial structure on performance of petroleum industries in Nigeria, the researchers expressed firm performance measured with return on assets as a function of financial structure (debt-equity ratio) and control variables (firm size and tax). The models of this study are stated in its functional form as follows:

$$ROA = f\ (DEA + TAX) \quad (3.1)$$

$$ROE = f\ (DEA + TAX) \quad (3.2)$$

$$PBT = f\ (DEA + TAX) \quad (3.3)$$

$$EPS = f\ (DEA + TAX) \quad (3.4)$$

These models were transformed in a log linear econometric format to get the coefficients of the elasticity of the variables, while reducing the impact that any outlier may have, thus:

Model 1

$$LogROA_t = a_0 + a_1 LogDEA_t + a_2 LogTAX_t + \mu_t \quad (3.5)$$

Model 2

$$LogROE_t = a_0 + a_1 LogDEA_t + a_2 LogTAX_t + \mu_t \quad (3.6)$$

Model 3

$$LogPBT_t = a_0 + a_1 LogDEA_t + a_2 LogTAX_t + \mu_t \quad (3.7)$$

Model 4

$$LogEPS_t = a_0 + a_1 LogDEA_t + a_2 LogTAX_t + \mu_t \quad (3.8)$$

Where: ROA = Return on Assets, ROE = Return on Equity, PBT = Profit before Tax, EPS = Earnings per Share, DEA = Debt-Equity Amalgam and TAX = Tax paid by firms within the period covered by the study as expressed in the statement of accounts.

a_0 is a constant term, μ is a random error or disturbance term and t is the time trend. These are included in standard time series specification to account for the omitted variables as well as unexplained random effects within the model.

3.3 Estimation Technique

Panel data analysis was used to analyse data collected. It enables the researcher to consider the effects of such data to estimate the results. Pooled ordinary least square, fixed effect and random model techniques were employed to examine the effect of financial structure on firm performance variables. The computer software E-views version 8.0 was used for the analysis.

4. DISCUSSION OF FINDINGS

4.1 Influence of Debt-Equity Amalgam on Return on Assets (ROA)

The analysis on the influence of financial structure on profitability of oil and gas firms was performed and compared albeit pooled, fixed and

random effect regression results. The model that provided a more strong estimation was adopted in analysing the influence of financial structure on profitability variables. The outcomes of the analysis are presented in Table 4.1, 4.2, 4.3 and 4.4.

Table 4.1 presents the result on influence of financial structure on return on assets of oil and gas firms in Nigeria using the pooled OLS, fixed effect and random effect models. From the estimation in Table 4.1, the fixed effect model provided a more robust estimation compared to pooled and random effect model. Thus, our analysis on financial structure influence on return on assets is anchored on the fixed effect model.

The fixed effect model of estimation shows that financial structure reflected by debt-equity amalgam and tax as control variable have negative but insignificant influence on return on assets of oil and gas firms in Nigeria. The coefficient of the constant 1019.308 signifies that holding debt-equity amalgam and tax constant, return on assets of oil and gas firm would stand at 1,019.308. The debt-equity amalgam coefficient of -0.042587 implies that a unit increase in debt-equity amalgam would decline return on assets by a factor of 4.23. This is in line with the findings of [19], [16] and [17] that debt-equity amalgam negatively influence return on assets of oil and gas firms in Nigeria, Malaysia and United States of America respectively. It also affirm the work of [8] and [20] that debt-equity and return on assets of oil and gas firms in United States of America and Pakistan respectively. This findings is in consistence with the pecking order theory of financial structure that hypothesised a negative relationship between financial structure and profitability of firms. Tax has a coefficient of -0.000385 signifying that a percentage increase in the tax rate paid by oil and gas firms within the study review would depreciate return on assets by a factor of 0.0385. This is in agreement with economic theory that when the tax rate is high, firm's profitability will be reduced as a larger fraction of net income will set aside for tax purpose. By substituting the coefficients of the variables into the estimation model, the equation is deduced as:

ROA = 1019.308 -0.042587*DEA - 0.000385*TAX

The value of the Adjusted R-squared which has the predisposition of eradicating the influence of the number of independent variables involved is 0.164032. This suggests that 16.40% variation in return on assets of oil and gas firms listed in Nigerian Stock Exchange was due to changes in debt-equity amalgam and tax paid by these firms. The Durbin Watson statistic of 2.1 indicated that there was no problem of autocorrelation. Furthermore, it envisages that the estimated equation can be depend upon in making justifiable conclusion regarding the influence of the debt-equity amalgam on return on assets of oil and gas firms listed in Nigerian Stock Exchange.

Table 4.1. Pooled OLS, fixed effect and random effect regression result
Dependent variable: Return on Assets (ROA)

Dependent variable: ROA
Method: Panel least squares
Sample: 1993 2013
Periods included: 21
Cross-sections included: 10
Total panel (balanced) observations: 210

Variables	Pooled OLS		Fixed effects		Random effects	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	846.0104	0.1147	1019.308	0.0653	828.2053	0.1665
DEA	-0.036095	0.9055	-0.042587	0.8951	-0.027356	0.9281
TAX	-5.79E-05	0.8763	-0.000385	0.4078	-2.78E-05	0.9409
R-squared	0.000180		0.164032		0.000064	
Adjusted R-squared	-0.009480		0.018442		-0.009597	
S.E. of regression	7109.927		7010.910		7006.696	
Sum squared resid	1.05E+10		8.75E+09		1.02E+10	
Log likelihood	-2159.008		-2140.215			
F-statistic	0.018678		1.126671		0.006647	
Prob(F-statistic)	0.981497		0.307631		0.993375	
Durbin-Watson stat	2.027788		2.127012		2.021070	

Source: Computed output data using E-views 8.0

The probability values of debt-equity amalgam in the three models of estimation (pooled OLS, fixed effect and random effect) in Table 4.1 are not significant. In the light of this, the null hypothesis that debt-equity amalgam has no significant influence on return on assets of oil and gas firms in Nigeria is accepted.

4.2 Influence of Debt-Equity Amalgam on Return on Equity (ROE)

Table 4.2 presents the result on influence of financial structure on return on equity of oil and gas firms in Nigeria using the pooled OLS, fixed and random effect models. From the regression analysis in Table 4.2, the fixed effect model provided a more robust estimation compared to pooled and random effect model. Thus, our analysis on the influence of financial structure on return on equity is hinged on the fixed effect model.

The fixed effect model of analysis reveals that financial structure surrogated by debt-equity amalgam and tax as control variable have negative but insignificant influence on equity return of oil and gas firms in Nigeria. The coefficient of the constant 2930.092 entails that if debt-equity amalgam and tax paid by firms are kept constant, equity return of oil and gas firm would stand at 2,930.092. The debt-equity amalgam coefficient of -0.111621 suggests that a percentage increase in debt-equity amalgam would depreciate equity return by a factor of 11.16. This supports the works of [16] and [8] that debt-equity amalgam influence equity return negatively in Malaysia and United States of America oil and gas firms respectively. The result also supports the pecking order theory of financial structure that hypothesised a negative relationship between financial structure and profitability of firms. Tax has a coefficient of -0.001586 implying that a unit increase in the tax rate paid by oil and gas firms within the study review would decline equity return by a factor of 0.0385. This supports economic theory postulation that high tax rate leads to reduction in operating profit. By substituting the coefficients of the variables into the estimation model, the equation is deduced as:

ROE = 2930.092 -0.111621*DEA - 0.001586*TAX

The value of the Adjusted R-squared which has the predilection of eliminating the influence of the number of explanatory variables in the analysis is 0.063637. This suggests that 6.36% variation in equity return of oil and gas firms listed in Nigerian Stock Exchange was due to changes in debt-equity amalgam and tax paid by these firms. The Durbin Watson statistic of 2.2 unveiled that there was no problem of autocorrelation. Furthermore, it signifies that the estimated equation can be relied upon in making justifiable inferences regarding the influence of the debt-equity amalgam on equity return of oil and gas firms listed in Nigerian Stock Exchange.

The probability values of debt-equity amalgam in the three models of estimation (pooled OLS, fixed effect and random effect) in Table 4.2 are insignificant. To this effect, the null hypothesis that debt-equity amalgam has no significant influence on return on equity of oil and gas firms in Nigeria could not be rejected.

4.3 Influence of Debt-Equity Amalgam on Profit before Tax (PBT)

Table 4.3 discloses the regression analysis on influence of financial structure on profit before tax of oil and gas firms in Nigeria by applying the pooled OLS, fixed and random effect models. From the regression outcome in Table 4.3, the fixed effect model provided a more robust estimation compared to pooled and random effect model. Thus, our analysis on the influence of financial structure on profit before tax is hinged on the fixed effect model.

The fixed effect model of estimation shows that financial structure reflected by debt-equity amalgam and tax as control variable have negative but insignificant influence on profit before tax of oil and gas firms in Nigeria. The coefficient of the constant 603043.3 means that holding debt-equity amalgam and tax constant, profit before tax of oil and gas firm would stand at 603,043.3. The debt-equity amalgam coefficient of -9.252695 implies that a unit increase in debt-equity amalgam would decline profit before tax by a factor of 925.27. This affirms the work of [6] that debt-equity amalgam and profit before tax of petroleum industry in Nigeria are negatively correlated. Tax has a coefficient of -1.493724 signifying that a percentage increase in the tax rate paid by oil and gas firms within the study review would depreciate profit before tax by a factor of 149.37. This is in agreement with economic theory that when the tax rate is high, firm's profitability will be reduced as a larger fraction of net income will set aside for tax purpose. By substituting the coefficients of the variables into the estimation model, the equation is deduced as:

PBT = 603043.3 -9.252695*DEA - 1.493724*TAX

The value of the Adjusted R-squared which has the predisposition of eradicating the influence of the number of independent variables in the analysis is 0.479453. This suggests that 47.95% variation in profit before tax of oil and gas firms listed in Nigerian Stock Exchange was due to changes in debt-equity amalgam and tax paid by these firms. The Durbin Watson statistic of 1.69 is not quite close to 2.0 and as such, there is a problem of autocorrelation. The critical value of F-distribution at 5% level of significance and 18 degree of freedom that is, F (18, 3) is 3.16. The F-statistic calculated of 94.44.9 in Table 4.3 is greater than the tabulated F-statistic of 3.16 and by implication, the model is statistically significant and has a goodness of fit. In addition, the probability of F-statistic 0.000000 is statistically significant at 1% level of significance.

Table 4.2. Pooled OLS, fixed effect and random effect regression result
Dependent variable: Return on Equity (ROE)

Dependent variable: ROE
Method: Panel least squares
Sample: 1993 2013
Periods included: 21
Cross-sections included: 10
Total panel (balanced) observations: 210

Variables	Pooled OLS		Fixed effects		Random effects	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	2011.826	0.0375	2930.092	0.0028	2141.306	0.0608
DEA	-0.086325	0.8747	-0.111621	0.8442	-0.056194	0.9178
TAX	0.000103	0.8778	-0.001586	0.0535	-0.000136	0.8428
R-squared	0.000242		0.202524		0.000238	
Adjusted R-squared	-0.009418		0.063637		-0.009422	
S.E. of regression	12793.19		12321.56		12545.98	
Sum squared resid	3.39E+10		2.70E+10		3.26E+10	
Log likelihood	-2282.367		-2258.630			
F-statistic	0.025052		1.458197		0.024593	
Prob(F-statistic)	0.975262		0.067959		0.975709	
Durbin-Watson stat	2.053147		2.271197		2.080170	

Source: Computed output data using E-views 8.0

Table 4.3. Pooled OLS, fixed effect and random effect regression result
Dependent variable: Profit before Tax (PBT)

Dependent variable: PBT
Method: Panel least squares
Sample: 1993 2013
Periods included: 21
Cross-sections included: 10
Total panel (balanced) observations: 210

Variables	Pooled OLS		Fixed effects		Random effects	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	384670.0	0.0532	603043.3	0.0037	384670.0	0.0532
DEA	-16.84020	0.8812	-9.252695	0.9388	-16.84020	0.8812
TAX	1.891190	0.0000	-1.493724	0.0000	1.891190	0.0000
R-squared	0.477116		0.556663		0.477116	
Adjusted R-squared	0.472064		0.479453		0.472064	
S.E. of regression	2633498.		2615003.		2633498.	
Sum squared resid	1.44E+15		1.22E+15		1.44E+15	
Log likelihood	-3401.069		-3383.741			
F-statistic	94.44071		7.209704		94.44071	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.699724		1.848232		1.699724	

Source: Computed output data using E-views 8.0

The probability values of debt-equity amalgam in the three models of estimation (pooled OLS, fixed effect and random effect) in Table 4.3 are not significant. Consequently, the null hypothesis that debt-equity amalgam has no significant influence on profit before tax of oil and gas firms in Nigeria is accepted.

4.4 Influence of Debt-Equity Amalgam on Earnings per Share (EPS)

Table 4.4 discloses the regression analysis on influence of financial structure on earnings per share of oil and gas firms in Nigeria by applying the pooled OLS, fixed and random effect models. From the regression outcome in Table 4.4, the fixed effect model provided a more robust estimation compared to pooled and random effect model. Thus, our analysis on the influence of financial structure on earnings per share is hinged on the fixed effect model.

The fixed effect model of estimation shows that financial structure reflected by debt-equity amalgam has negative but insignificant influence on earnings per share of oil and gas firms in Nigeria while tax as control variable exhibit positive relationship. The coefficient of the constant 214.4279 implies that holding debt-equity amalgam and tax constant, earnings per share of oil and gas firm would stand at 214.4279. The debt-equity amalgam coefficient of -0.002019 suggests that a unit increase in debt-equity amalgam would decline earnings per share by a factor of 0.20. This affirms the work of [5] that debt-equity amalgam exert negative influence on earnings per share of oil and gas firms in Nigeria. Tax has a coefficient of 4.32E-05 signifying that a unit increase in the tax rate paid by oil and gas firms within the study review would improve earnings per share by a factor of 435. By substituting the coefficients of the variables into the estimation model, the equation is deduced as:

EPS = 214.4279 -0.002019 *DEA +4.32E-05 *TAX

The value of the Adjusted R-squared which has the predisposition of eradicating the influence of the number of independent variables in the analysis is 0.533408. This suggests that 53.34% variation in earnings per share of oil and gas firms listed in Nigerian Stock Exchange was due to changes in debt-equity amalgam and tax paid by these firms. The Durbin Watson statistic of 1.37 is not quite close to 2.0 and as such, there is problem of autocorrelation. The critical value of F-distribution at 5% level of significance and 18 degree of freedom that is, F (18, 3) is 3.16. The F-statistic calculated of 13.87 in Table 4.4 is greater than the tabulated F-statistic of 3.16 and by implication, the model is statistically significant and has a goodness of fit. In addition, the probability of F-statistic 0.000002 is statistically significant at 1% level of significance.

Table 4.4. Pooled OLS, fixed effect and random effect regression result
Dependent variable: Earnings per Share (EPS)

Dependent variable: EPS
Method: Panel least squares
Sample: 1993 2013
Periods included: 21
Cross-sections included: 10
Total panel (balanced) observations: 210

Variables	Pooled OLS		Fixed effects		Random effects	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	183.9216	0.0000	214.4279	0.0000	208.9827	0.0132
DEA	-0.007738	0.6182	-0.002019	0.8675	-0.001232	0.9161
TAX	9.92E-05	0.0000	4.32E-05	0.0139	5.29E-05	0.0012
R-squared	0.118197		0.602615		0.049794	
Adjusted R-squared	0.109677		0.533408		0.040613	
S.E. of regression	362.8752		262.6954		262.6865	
Sum squared resid	27257436		12283581		14283871	
Log likelihood	-1534.219		-1450.527			
F-statistic	13.87319		8.707367		5.423695	
Prob(F-statistic)	0.000002		0.000000		0.005060	
Durbin-Watson stat	0.796717		1.379902		1.363405	

Source: Computed output data using E-views 8.0

The probability values of debt-equity amalgam in the three models of estimation (pooled OLS, fixed effect and random effect) in Table 4.4 are insignificant. To this end, the null hypothesis that debt-equity amalgam has no significant influence on earnings per share of oil and gas firms in Nigeria is accepted.

The overall result of this study shows that financial structure has negative effect on the profitability of oil and gas firms in Nigeria. This findings is in unison with the proposition of the pecking order theory that financial structure and firm profitability are negatively correlated. The debt-equity amalgam of oil and gas firms in Nigeria negatively influenced return on assets, return on equity, profit before tax and earnings per share. Despite the huge loan made available to oil and gas firms by some commercial banks in Nigeria their profitability have not been enhanced. Some economic and political factors may contribute to poor revenue earnings of oil and gas firms in Nigeria. Such factors includes forces of demand and supply in international oil market, OPEC reluctance in cutting down production quota of its member as done in the past, lifting of Iran's nuclear sanction by world powers, dominancy in OPEC crude oil supply by Saudi Arabia and high influx of crude oil into the market attributed to high oil production by Iraq, Libya and Angola. Other instabilities like El-Shabab, oil theft, financial crisis, security and pipeline vandalism also affect production which in turn reduces the expected revenue from operations.

5. CONCLUSION

This study determined empirically the influence of financial structure on profitability with special reference to oil and gas firms in Nigeria from 1993 to 2013. Financial data from ten (10) selected oil and gas firms listed on Nigerian Stock Exchange were analysed using panel estimation analysis for which pooled ordinary least square, fixed effect and random effect models were conscientiously adopted. The results of the estimation revealed that financial structure has negative influence on profitability of oil and gas firms measured by return on assets, return on equity, profit before tax and earnings per share. The findings is in line with previous empirical studies on the existence of a negative relationship between financial structure and firm profitability. It also provide credence to the pecking order theory of financial structure which states that firms prefer internal financing before resorting to any form of external funds. Internal funds incur no flotation costs and require no additional disclosure of proprietary financial information that could lead to more severe market discipline and a possible loss of competitive advantage. Some economic and political factors such forces of demand and supply in international oil market, OPEC reluctance in cutting down production quota of its member as done in the past, lifting of Iran's nuclear sanction by world powers, dominancy in OPEC crude oil supply by Saudi Arabia, high influx of crude oil into the market attributed to high oil production by Iraq, Libya and Angola, El-Shabab issue, oil theft, financial crisis, security and pipeline vandalism might contribute to poor revenue of oil and gas firms in Nigeria. In view of the negative influence financial structure has on profitability, we recommends that oil and gas firms in Nigeria should fund their operations with more of equity capital. Inevitably, oil and gas firms globally have been adversely affected by the falling oil prices with their revenues and profit on the decline and as such, borrowing from commercial banks, financial markets and other sources of external financing should be minimize due to high interest rates associated with such facilities.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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