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Shareholder value diminution through long-term debts: Evidence from the Nigerian oil industry

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Abstract

Purpose: Failure to maintain an optimal balance between the benefits of long-term debts and the risks associated with financial distress often results in the erosion of shareholder value. In view of the above problem, this study examined whether long-term debts affect shareholder value diminution among listed oil and gas firms in Nigeria.

Research Methodology: *The ex-post facto* research design was deployed on a sample of five firms purposively selected from a population of nine listed oil and gas firms in Nigeria. Secondary data were sourced from the firms' annual reports between 2014-2023. The hypotheses were tested using panel-estimated generalised least squares.

Results: An increase in long-term debt to asset ratio significantly contributes to shareholder value diminution (β = -42.56871; p-value of 0.0003); an increase in long-term debt to equity ratio significantly contributes to shareholder value diminution (β = -5.441092; p-value of 0.0005).

Conclusions: The over-reliance on long-term debt financing contributes to heightened financial vulnerability as well as sabotages the aim of maximising shareholders' wealth.

Limitations: The study sampled only five out of nine listed Nigerian oil and gas firms and relies solely on net assets per share to measure shareholder value, which may not fully capture the industry's broader financial dynamics.

Contribution: In conclusion, the over-reliance on long-term debt financing contributes to heightened financial vulnerability as well as sabotages the aim of maximising shareholders wealth. We recommend that the management of companies in the Nigerian oil and gas industry implement stricter controls on their long-term debt-to-asset ratios by setting a threshold beyond which debt levels should not increase in order to avoid significant shareholder value erosion.

Keywords: *Shareholder Value, Long-Term Debts, Static Trade-Off Theory*

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1. Introduction

The Nigerian oil and gas industry is a cornerstone of the country's economy, as it contributes considerably to government revenues, foreign exchange earnings, and employment. The industry is

heavily influenced by both internal and external factors, such as global oil prices, geopolitical dynamics, and technological advancements (Olakada, Bakare, Taiwo, Ibrahim, & Abubakar, 2024). Among the numerous challenges facing the industry, financial management and capital structure decisions are particularly critical (Fijabi, Ajao, & Ajibade, 2022; Mohammed, Taiwo, Bappah, & Saleh, 2024). In this regard, the role of corporate financing, particularly through long-term debt, has become a focal point for stakeholders, including investors, financial analysts, and policymakers. The ability to efficiently manage capital structure—through a balance of equity and debt—can determine the sustainability and profitability of companies, especially in an environment characterized by volatile oil prices and fluctuating exchange rates (Anozie, Muritala, Ininm, & Yisau, 2023).

Leverage, in the context of corporate finance, refers to the use of borrowed funds to finance investments. (Liviani & Rachman, 2021) With the expectation that the returns from the investment will exceed the cost of debt (Lomwai & Ndede, 2023; Nugrahani, Soma, & Sitorus, 2024). Long-term debt, specifically, is a significant component of a company's capital structure. It offers several advantages, including tax shields, reduced equity dilution, and access to large sums of capital for substantial investments in infrastructure, exploration, and production activities (E. Ahmad, 2023). In today's business environment, the role of long-term debt has become increasingly relevant. However, while leveraging debt can amplify returns during favorable market conditions, it also introduces significant financial risk, especially during periods of economic downturns or when the cost of servicing the debt becomes burdensome (Omabu, Okoye, & Amahalu, 2021). In light of the recent fluctuations in global oil prices, political instability, and the broader macroeconomic challenges in Nigeria, understanding the optimal use of debt in financing and its impact on shareholder wealth has never been more important.

The relationship between long-term debt and shareholder value has been the subject of extensive debate and research in corporate finance (Bui, Nguyen, & Pham, 2023; Ikilidih & Dibua, 2023; Muthoni, Jagongo, & Muniu, 2019). On one hand, debt financing can enhance shareholder value by providing companies with the necessary capital to expand operations, pursue new projects, or enter new markets (Chandra & Juliawati, 2020). On the other hand, excessive reliance on debt can lead to an increase in financial risk, which can erode shareholder value (D'Mello, Gruskin, & Kulchania, 2018). According to the Static Trade-Off Theory, companies aim to balance the tax advantages of debt (such as interest deductions) with the costs of financial distress, which arise when a firm becomes too indebted and is unable to meet its debt obligations (Pyoko, 2024). This theory suggests that there exists an optimal capital structure for every firm, where the marginal benefit of debt equals its marginal cost (Bilal & Tanveer, 2023). In the context of the Nigerian oil and gas industry, understanding this trade-off is particularly pertinent, given the cyclical nature of oil prices, the high capital requirements for exploration and extraction, and the risks associated with government regulations and environmental concerns. The use of long-term debt, if not carefully managed, can lead to shareholder value diminution as it increases the likelihood of financial distress and reduces the firm's flexibility to respond to adverse market conditions.

The use of long-term debt within the Nigerian oil and gas sector must be analyzed within the broader framework of the Static Trade-Off Theory. This theory postulates that there is a trade-off between the tax benefits of debt and the costs incurred from the risk of financial distress (Pyoko, 2024). In other words, while companies can gain from tax shields provided by interest expenses on debt, they must also consider the potential costs associated with higher levels of debt, including the risk of bankruptcy, loss of shareholder value, and decreased managerial flexibility (Bilal & Tanveer, 2023). This is especially relevant in the oil and gas industry, where market conditions are often unpredictable (Udo et al., 2024), and the high costs of debt servicing can be burdensome during periods of declining oil prices or economic downturns.

The Static Trade-Off Theory highlights the balance that firms must achieve between the benefits of debt financing—primarily the tax advantages—and the risks associated with too much leverage (Bilal & Tanveer, 2023). Thus, if a company takes on too much debt, it may face difficulties in meeting its debt obligations, leading to an increased risk of bankruptcy or the need to liquidate assets under unfavorable conditions. In such cases, the value of the firm may diminish due to the increased likelihood of financial

distress (Appiah, Gyimah, & Abdul-Razak, 2020). This is particularly crucial in the Nigerian oil and gas industry, where companies often face volatility in oil prices, and regulatory challenges, all of which can affect their ability to generate consistent cash flow (Udo et al., 2024). Excessive debt burdens, when coupled with these external shocks, can significantly diminish shareholder value by eroding earnings, reducing dividends, and lowering stock prices. Moreover, the increasing level of debt can strain an entity's capacity to invest in future growth opportunities, as more resources are directed toward servicing debt rather than reinvesting in the business (Ikwuo, Ikwor, Abagha, Esther, & Nworie, 2024). Long-term debt, when not carefully managed, can lead to shareholder value diminution for several reasons. First, debt increases the company's fixed obligations, which may limit its financial flexibility (Apergis & Sorros, 2011). In periods of low oil prices or economic stagnation, firms with high debt levels may struggle to meet their debt obligations, leading to a reduction in shareholder dividends or a fall in stock prices. Second, the risk of bankruptcy increases as the firm's debt levels rise (Obi & Nworie, 2024). In extreme cases, this may result in a loss of control by shareholders, as creditors may take over the company's assets or impose unfavorable terms. Third, high leverage can lead to conflicts between shareholders and creditors, as creditors may prioritize debt repayment over the interests of shareholders, further diminishing shareholder value. Finally, the cost of financial distress can erode shareholder wealth, as firms facing financial difficulties may be forced to sell assets at below-market prices or forgo potentially lucrative projects in favor of reducing debt exposure.

However, a review of some annual reports of oil and gas companies in Nigeria showed that some of these firms have taken on substantial long-term debt to finance exploration, production, and expansion projects, especially in response to the volatility of global oil prices and economic instability within the country. While this leverage has allowed oil and gas firms to raise capital quickly, it has also led to an overreliance on debt, with some companies not managing their capital structure optimally. As a result, the ideal balance between debt benefits and the associated risks of financial distress is not being maintained, leading to an erosion of shareholder value (Omokore, Njogo, Omankhanlen, Islaka, & Akinjare, 2024).

The consequences of this overleveraging and sub-optimal usage of long-term debt are significant for shareholders and the broader economy (Fachrian & Hidayat, 2023). This is because excessive debt increases the likelihood of financial distress, where firms may struggle to meet their debt obligations, leading to a reduction in shareholder dividends, a decrease in stock prices, and overall diminished market confidence. In severe cases, this could lead to bankruptcy or forced asset sales, further diminishing shareholder wealth. Additionally, companies may be forced to curtail investment in new projects, research and development, and growth initiatives as more resources are directed toward servicing debt rather than driving long-term profitability. This stagnation reduces the company's potential to create value for shareholders. Despite the enormity of the above problem, studies in Nigerian such as S. M. Ahmad, Bakar, and Islam (2020), Jibrin, Abubakar, and Abubakar (2024), Adibeli and Amahalu (2023) and Anozie et al. (2023) have not assessed the extent to which the use of long-term debts contributes to the diminution of shareholders' value (proxy by net asset per share) using the Nigerian oil and gas industry as a case study. This study contributes to existing knowledge since it is geared towards addressing the above gap in the literature.

1.1 Objective of the study

The main aim of the study is to examine whether long-term debts lead to shareholder value diminution among listed oil and gas firms in Nigeria. The specific objectives are:

1. To ascertain the extent to which long-term debt-to-asset ratio reduces net asset per share of listed oil and gas firms in Nigeria.
2. To examine the degree to which long-term debt-to-equity ratio reduces net asset per share of listed oil and gas firms in Nigeria.

2. Literature Review

2.1 Conceptual Issues: Long-term Debts and Shareholder Value

Long-term debts are a crucial element of corporate financing (Naomi, 2023), especially in industries that require substantial capital for large-scale investments, such as the oil and gas sector. Long-term

debts allow companies to access necessary funds without immediately diluting ownership through equity issuance (Gupta & Chandra, 2024), which can be particularly beneficial when pursuing expansive projects like exploration, infrastructure development, or technological upgrades (Ahmad, 2023). While leveraging debt can be an attractive way to finance operations, it introduces a unique set of challenges. The fundamental advantage of long-term debt is the ability to secure large sums of money for growth without the need to give up control of the company. However, this financial tool also requires disciplined management to ensure that debt levels do not become unsustainable (Nworie, Obi, Anaike, & Uchechukwu-Obi, 2022). Firms with high long-term debt obligations face increased risk, especially in volatile markets, where fluctuating revenues may make it difficult to meet debt repayments. The oil and gas industry, with its susceptibility to market price swings, geopolitical tensions, and environmental regulations, exemplifies the risks of over-relying on long-term debt as a financing strategy.

Shareholder value is traditionally defined as the worth delivered to shareholders through both capital appreciation and dividends. According to Egiyi and Okafor (2022), shareholder value refers to the financial worth delivered to the shareholders of a company through the company's ability to increase its stock price and provide dividends. It is a measure of the success of a business in fulfilling its financial obligations to its shareholders, with the ultimate goal being to increase the wealth of these stakeholders (Ugwuene, Okwo, & Ubesie, 2022). The pursuit of maximizing shareholder value is central to corporate governance and strategic decision-making (Anaike, Nworie, & Ochuka, 2024), with firms aiming to enhance profitability (Oranefo & Egbunike, 2023) and increase stock prices over time (Hall, 2024). For shareholders, this typically translates into both short-term returns and long-term growth, with the expectation that the company will remain financially robust and capable of delivering consistent value. Shareholder value is often tied to the company's performance, which includes the successful execution of business strategies, efficient capital management, and a favorable external environment (Buertey, 2023). In an ideal world, companies would pursue strategies that enhance both operational efficiency and market performance, creating a sustainable growth trajectory that benefits all shareholders (Nawary & Hussien Seoudy, 2023; Nworie & Oguejiofor, 2023). However, the challenge lies in the balance between risk and reward. External factors, such as global economic conditions or sector-specific risks, can drastically impact the ability of a company to deliver consistent value, and internal decisions, such as capital structure choices, can also alter the potential for long-term shareholder wealth (Buertey, 2023).

The concept of shareholder value diminution through long-term debts is critical for understanding the complex dynamics between capital structure and financial stability. While long-term debt offers advantages such as tax shields and the potential for higher returns on equity, it also carries significant risks that can erode shareholder value if not carefully managed. When a company accumulates too much long-term debt, it becomes more vulnerable to financial distress (Ugwuene et al., 2022). The cost of servicing debt may outweigh the benefits of using leverage, especially during periods of low revenue or adverse market conditions. In the oil and gas industry, where prices are often volatile, and profitability can be unpredictable, high debt levels can exacerbate financial strain. A company that cannot meet its debt obligations may be forced to reduce or eliminate dividends, which directly impacts shareholder returns. Furthermore, creditors may assume more control over the company's decision-making, reducing shareholder influence and limiting the potential for growth. In extreme cases, the company could be pushed into bankruptcy or face asset sales to repay debt, both of which significantly diminish shareholder wealth. Therefore, excessive reliance on long-term debt not only increases the risk of financial distress (Nworie & Mba, 2022) but also threatens the fundamental premise of creating shareholder value, highlighting the importance of maintaining a balanced and well-managed capital structure (Ugwuene et al., 2022).

2.2 Theoretical Framework and Development of Research Hypothesis

The Static Trade-Off Theory, first formally introduced by Stewart C. Myers in his 1984 work, emerged as a significant contribution to the study of capital structure in corporate finance (Genç, 2018). The theory was developed as a response to the limitations of the earlier Modigliani and Miller (1958) theorem, which suggested that in a world without taxes, bankruptcy costs, or other market imperfections, the capital structure of a firm would have no effect on its value. However, Kraus and

Litzenberger introduced the Static Trade-Off Theory, which acknowledges the real-world implications of taxes, bankruptcy costs, and financial distress, proposing that firms face a trade-off between the benefits and costs of debt financing (Genç, 2018). This theory provides a more practical framework by explaining how firms balance the tax benefits of debt (through interest deductions) with the costs associated with increased financial risk, especially the risk of default or bankruptcy.

The main postulations of the Static Trade-Off Theory focus on the idea that firms seek to balance the tax advantages of debt with the costs of financial distress (Bilal & Tanveer, 2023). Debt financing provides a tax shield, as interest payments are tax-deductible, which can increase the value of the firm. However, as a firm increases its debt levels, the likelihood of financial distress rises, leading to potential bankruptcy costs, loss of flexibility, and the erosion of shareholder value. The theory suggests that an optimal capital structure exists for every firm, where the marginal benefit of debt (primarily the tax shield) is exactly equal to the marginal cost of debt (primarily the risk of financial distress) (D'Mello et al., 2018). According to this theory, firms do not continuously increase their debt levels but instead find an optimal point where the costs of adding more debt outweigh the benefits (Genç, 2018). This optimal point balances the benefits of debt with the associated risks, ensuring the firm's stability and maximizing shareholder value (Pyoko, 2024).

The relevance of the Static Trade-Off Theory to the topic of shareholder value diminution through long-term debts in the Nigerian oil and gas industry is clear. Given the capital-intensive nature of the industry, companies often rely on debt to finance major exploration and development projects. However, the theory suggests that while debt can offer tax advantages and enable firms to finance large investments, excessive reliance on long-term debt can lead to financial distress (Pyoko, 2024), especially in an industry subject to price volatility and external shocks. In the context of the Nigerian oil and gas industry, where companies face challenges such as fluctuating oil prices, regulatory pressures, and the high cost of debt servicing, the Static Trade-Off Theory provides a useful framework to analyze how an imbalance between debt and equity financing could lead to shareholder value diminution. Thus, we hypothesise that:
Ha1) Increase in the long-term debt to asset ratio will significantly contribute to shareholder value diminution.
Ha2) Increase in the long-term debt to equity ratio will significantly contribute to shareholder value diminution.

2.3 Empirical Review

The empirical literature on the effect of long-term debts on shareholder value reveals diverse findings, highlighting both positive and negative impacts on firm performance. Ahmad et al. (2020) examined the impact of long-term debt to asset ratio on the firm value of listed Nigerian companies. Their study, which spanned from 2008 to 2017, found that a higher ratio of long-term debt to total assets positively affected the firm value, suggesting that firms with more debt could increase their asset value and generate shareholder wealth. Similarly, Muthoni et al. (2019) found that debt financing positively influenced shareholder value, particularly in non-financial firms in Kenya. Their study used a census of 40 firms and reported a statistically significant positive relationship between debt financing and Economic Value Added (EVA), suggesting that debt can enhance the ability of firms to create value for shareholders. On the other hand, Jibrin et al. (2024) found that long-term debt had a significant negative impact on return on equity (ROE) and return on assets (ROA) for cement manufacturing firms, highlighting the adverse effects of excessive debt on financial performance. These mixed results indicate that while debt can potentially enhance firm value, it may also reduce financial performance depending on the firm's capital structure and industry-specific factors.

In line with these findings, Sukma, Nurtina, and Nainggolan (2022) observed a positive effect of long-term debt on profitability in Indonesia's hotel and tourism sector, where long-term debt to equity ratio positively impacted return on equity (ROE). This aligns with the positive relationship between leverage and profitability observed by other researchers, such as Akhtar, Khan, Shahid, and Ahmad (2016), who found a positive link between leverage and firm value in Pakistan. However, some studies contradict this view, emphasizing the negative effects of long-term debt on firm performance. For instance,

Apergis and Sorros (2011) found that long-term debt negatively affected firm value in international manufacturing firms, while Omokore et al. (2024) observed a negative relationship between long-term debt and return on equity for healthcare firms in Nigeria, suggesting that excessive reliance on debt could undermine profitability and firm performance. These negative impacts could be attributed to the higher financial risk associated with debt financing, especially in volatile sectors like oil and gas, where price fluctuations and regulatory challenges can exacerbate the negative consequences of leverage.

Further empirical evidence supports the notion that the effects of long-term debt on financial performance are highly context-dependent. For example, Adibeli and Amahalu (2023) found a significant positive relationship between long-term debt and shareholder wealth creation in Nigeria's manufacturing sector. Similarly, Bui et al. (2023) found that long-term debt ratios negatively impacted firm value, particularly in Vietnam's stock market, with the most pronounced effect on Tobin's Q, a common indicator of firm value. In contrast, Ikilidih and Dibua (2023) did not find any significant impact of long-term debt on earnings per share in Nigerian manufacturing firms, suggesting that the impact of debt may not always translate into immediate shareholder value creation. This variability is further highlighted by studies such as Mwiti and Gitagia (2023), who found a positive effect of long-term debt on return on assets in manufacturing firms in Kenya. These studies suggest that the effect of debt on shareholder value depends on the sector, the type of debt used, and the financial health of the firm.

Focusing on the oil and gas industry, Anozie et al. (2023) conducted an in-depth investigation into the effect of long-term debt to total assets on the financial performance of Nigerian oil and gas companies, finding a significant negative relationship with return on assets. This finding is consistent with the negative effects of high debt ratios observed in other sectors, as firms in the oil and gas industry face substantial risks due to market volatility and regulatory changes. This negative relationship suggests that, despite the potential benefits of debt financing, excessive long-term debt can erode the profitability and performance of oil and gas firms. Conversely, Oko and Elemi (2023) found a significant but negative relationship between long-term debt ratio and cash value added for industrial goods firms in Nigeria, suggesting that excessive leverage may result in poor cash flow and hinder the firm's ability to generate value for shareholders.

In summary, the empirical literature presents a complex and varied picture of the relationship between long-term debt and shareholder value. While some studies suggest a positive impact of debt on firm value and shareholder wealth, particularly in terms of profitability and economic value added (S. M. Ahmad et al., 2020; Muthoni et al., 2019), others highlight the detrimental effects of excessive leverage, particularly in volatile industries like oil and gas (Anozie et al., 2023; Jibrin et al., 2024). The findings from these studies emphasize the importance of managing debt levels effectively and considering industry-specific factors when assessing the potential effects of long-term debt on shareholder value. Given these diverse outcomes, further research is needed to explore the specific dynamics within the Nigerian oil and gas sector, focusing on the impact of long-term debt ratios on key performance indicators such as net asset per share, return on equity, and return on assets.

2.4 Gap in Literature

The existing literature on the effect of long-term debt on shareholder value primarily focuses on various industries and countries, yet there remains a notable gap in studies examining the specific effect of long-term debt on shareholder value in Nigeria's oil and gas sector, particularly through the lens of net asset per share. While authors such as Ahmad et al. (2020), Jibrin et al. (2024), and Anozie et al. (2023) have examined the relationship between long-term debt ratios and firm performance, these studies generally rely on metrics like return on equity (ROE), return on assets (ROA), and profitability, with no attention given to net asset per share as a measure of shareholder value in the oil and gas industry. Additionally, while panel data analysis is widely used, there is a lack of studies that address the potential issue of panel heteroskedasticity by employing robust estimation techniques, such as White period standard errors and covariance, which can more accurately reflect the true relationship between long-term debt and shareholder value. Authors such as Muthoni et al. (2019), Appiah et al. (2020), and Adibeli and Amahalu (2023) have examined the broader effects of financial leverage, but their methodologies do

not explicitly consider the need for heteroskedasticity correction in panel regressions, which may undermine the robustness of their findings. Therefore, there is a clear research gap in utilizing net asset per share as a dependent variable and adopting advanced econometric techniques like White period standard errors to account for heteroskedasticity in the context of Nigerian oil and gas firms.

3. Methodology

This study investigates the effect of long-term debts on shareholder value diminution among listed oil and gas firms in Nigeria, using an ex-post facto research design. This design was selected for its appropriateness in examining the effect of long-term debt ratios on shareholder value, as it allows for testing relationships between events that already occurred in the past (Rohwer, 2022). Since the events of interest have already occurred, the researcher has no control over the data, making the results less susceptible to bias. The research focuses on all oil and gas firms listed on the Nigerian Exchange Group (NGX). As of December 31st, 2023, there are nine oil and gas firms publicly listed on the NGX, which constitute the population for this study. The listed firms are as follows:

Table 1. Population of the Study

1. Capital Oil PLC
2. Conoil PLC
3. Eterna PLC
4. Japaul Oil & Ventures PLC
5. MRS Oil Nigeria PLC
6. Oando PLC
7. Rak Unity Petroleum PLC
8. Seplat Nigeria Petroleum PLC
9. TotalEnergies Nigeria PLC

Source: Nigerian Exchange Group (2023)

The sample for the study was selected using purposive sampling. Due to data availability, five of the nine listed oil and gas firms were chosen. These firms include TotalEnergies Nigeria PLC, Conoil PLC, Eterna PLC, Japaul Oil & Ventures PLC, and MRS Oil Nigeria PLC. Data from their annual reports and financial statements were collected for analysis, covering the period from 2014 to 2023. The data for this study were collected from secondary sources, specifically the annual reports of the selected oil and gas firms. The data covered a ten-year period from 2014 to 2023 and were utilized to compute the independent variables (long-term debt ratios) and the dependent variable (net asset per share). This secondary data approach ensures that the findings are based on real-world financial information.

The collected data were coded into the statistical software EVIEWS Version 11, which was used for both descriptive and inferential statistical analysis. Descriptive statistics such as mean, maximum value, minimum value, and standard deviation were computed to provide an overview of the data. The mean was used to determine the average value of the variables, while the standard deviation assessed the extent of variability.

To test the hypotheses, a Panel Estimated Generalised Least Square (Cross-section weights with White period standard errors & covariance) regression model was employed at a 5% significance level. This model was selected because it allows for efficient estimation of panel data while accounting for heteroskedasticity and cross-sectional dependence. The model was further evaluated for panel heteroskedasticity, cross-sectional dependence, and multicollinearity to ensure the robustness and reliability of the results. The study uses multiple long-term debt ratio proxies, including long-term debt to asset ratio (LTDA) and long-term debt to equity ratio (LTDE). The dependent variable (shareholder value diminution) is the net asset per share (NPS). The relationship between these variables is captured in the following functional form:

$$NPS = f(LTDA, LTDE) \ldots \text{eqn (i)}$$

The econometric model for this study is represented as:

$$NPSit = a0 + b1LTDAit + b2LTDAit + \mu it \ldots \text{eqn (ii)}$$

Where:
NPS = Net Asset Per Share, calculated as the ratio of net asset to total number of outstanding ordinary shares
LTDA = Long-term Debt to Asset Ratio, measured as the ratio of noncurrent debts to total assets
LTDA = Long-term Debt to Equity Ratio, measured as the ratio of noncurrent debts to total equity
a0 = Constant
b1-2 = Coefficients of the independent variables
μ = Disturbance term
i = Firm
t = Time period

To make inferences about the effect of long-term debt on shareholder value, the study applied a decision rule based on a 5% significance level. If the p-value of the estimated coefficients is less than 0.05, the null hypothesis is rejected, indicating that long-term debt significantly affects shareholder value diminution. Conversely, if the p-value is greater than 0.05, the null hypothesis is not rejected, suggesting that long-term debt does not have a statistically significant effect on shareholder value diminution.

4. Result and discussions

4.1 Descriptive Analysis

Table 2 below shows the descriptive statistics of the variables.
Table 2. Descriptive Statistics

	NPS	***LTDA***	***LTDE***
Mean	39.25525	0.174731	0.105791
Maximum	165.1667	1.801022	3.148605
Minimum	-5.000441	0.001791	-2.593596
Std. Dev.	39.84979	0.366501	0.805866
Observations	50	50	50

Source: Eviews 11 Output (2024)

As shown in Table 2 above, the mean value of **Net Asset Per Share (NPS)** is 39.26, suggesting that, on average, the firms in the study have a positive net asset per share of 39.26 units. This indicates that these companies, on average, have assets greater than liabilities, which is a positive sign for shareholder value. The maximum value observed is 165.17, which shows that in some instances, the firms have significantly higher net assets per share, indicating stronger financial health in those years. However, the minimum value is -5.00, indicating that there are some instances where firms experienced negative net asset per share, possibly reflecting situations of financial distress or substantial losses. The standard deviation of 39.85 suggests a high level of variability in the net asset per share across firms, meaning that there is a wide range in shareholder value among the listed oil and gas firms in Nigeria.

The **Long-term Debt to Asset Ratio (LTDA)** has a mean value of 0.175, indicating that, on average, the firms in the study have about 17.5% of their total assets financed by long-term debt. This suggests a moderate reliance on long-term debt for financing assets. The maximum value of 1.80 implies that, in some cases, firms have a significantly higher proportion of their assets financed by long-term debt, which could indicate higher financial leverage and potential risk. On the other hand, the minimum value of 0.00 (or close to zero at 0.0018) shows that some firms have very little or no reliance on long-term debt. The standard deviation of 0.37 reflects moderate variability in the LTDA among the firms, suggesting differences in how firms are financed, with some leaning more heavily on long-term debt while others rely less on it.

The **Long-term Debt to Equity Ratio (LTDE)** has a mean value of 0.106, suggesting that, on average, for every unit of equity, the firms use approximately 10.6% of long-term debt to finance their operations. The maximum value of 3.15 indicates that, in some instances, firms have a much higher level of long-term debt relative to their equity, suggesting significant leverage that may increase financial risk. The

minimum value of -2.59 represents instances where long-term debt exceeds equity in a negative way, possibly due to negative equity in some firms, which can be a sign of financial distress. The standard deviation of 0.81 indicates a high degree of variability in how much long-term debt firms use compared to their equity, reflecting differences in capital structures across the firms.

4.2 Model Diagnostics

Three model diagnostic tests were carried out, namely: heteroskedasticity test, cross-sectional dependence test, and multicollinearity test, as shown below.

Table 3. Model Diagnostics

Items	***Heteroskedasticity***	***Cross-Sectional Dependence***
Type of test conducted	Likelihood ratio	Breusch-Pagan LM
p-value	0.0000	0.0038

Source: Eviews 11 Output (2024)

The tests for heteroskedasticity and cross-sectional dependence are essential diagnostics used to assess the validity and reliability of the regression model. Heteroskedasticity refers to the condition where the variance of errors is not constant across observations, which can lead to inefficient estimates and invalid inferences. The Breusch-Pagan LM test for heteroskedasticity was conducted with a p-value of 0.0000, which is well below the conventional significance level of 0.05. This indicates that heteroskedasticity is present in the model, meaning that the variance of errors differs across the observations, which could affect the reliability of the coefficient estimates and their statistical significance. To address this, White period standard errors and covariance were used to correct for heteroskedasticity, ensuring that the standard errors are consistent and unbiased despite the presence of non-constant variance.

Similarly, cross-sectional dependence tests the presence of interdependencies or correlations among individual cross-sectional units (i.e., firms in this case), which can lead to biased and inefficient estimates if not properly accounted for. The Likelihood ratio test for cross-sectional dependence produced a p-value of 0.0038, which also falls below the 0.05 threshold, indicating significant cross-sectional dependence among the firms in the study. This suggests that the financial performance of these firms may be influenced by common factors, making it crucial to account for these interdependencies to avoid biased estimates. To mitigate this issue, cross-section weights were applied, which adjust for the correlation among cross-sectional units and ensure the model's efficiency and validity in the presence of such dependencies. These corrective measures help to improve the robustness of the results by addressing the issues of heteroskedasticity and cross-sectional dependence.

Table 4. Multicollinearity Test

Variable	***Centered VIF***
LTDA	1.190231
LTDE	1.190231

Source: Eviews 11 Output (2024)

The multicollinearity test assesses whether there is a high correlation between the independent variables in the regression model, which could distort the estimation of coefficients and inflate standard errors. Multicollinearity can cause issues like difficulty in determining the individual effect of each independent variable on the dependent variable. In this case, the Centered VIF (Variance Inflation Factor) for both the Long-term Debt to Asset Ratio (LTDA) and the Long-term Debt to Equity Ratio (LTDE) is 1.190231. A VIF value of 1 indicates that there is no multicollinearity problem, as it suggests that the independent variables are not highly correlated with one another. Generally, a VIF value greater than 10 signals high multicollinearity. With VIF values for both LTDA and LTDE being 1.190231, it indicates that the model does not suffer from multicollinearity, and the variables are sufficiently independent of each other.

4.3 Test of Hypothesis

Table 5 below shows the result of the regression analysis.

Table 5. Panel EGLS (Cross-section weights and White period standard errors & covariance)

Variable	*Coefficient*	*Prob.*
LTDA	-42.56871	0.0003
LTDE	-5.441092	0.0005
C	41.94092	0.0009
Adjusted R-squared	0.257323	
F-statistic	9.488754	
Prob(F-statistic)	0.000346	

Source: Eviews 11 Output (2024)

Table 5 is the regression output that shows whether long-term debts (long-term debt to asset ratio and long-term debt to equity ratio lead to shareholder value diminution among listed oil and gas firms in Nigeria. The Adjusted R-squared of 0.2573 indicates that approximately 25.73% of the variation in shareholder value (proxy by Net Asset Per Share) is explained by the independent variables in the model, which include Long-term Debt to Asset Ratio (LTDA) and Long-term Debt to Equity Ratio (LTDE). Although this value is relatively low, it is not unusual for financial data, where other factors that influence firm value may not be captured in the model. It suggests that while the model explains some portion of the variation in shareholder value, a significant amount of the variation remains unexplained by the included variables.

The F-statistic of 9.49 tests the overall significance of the regression model, i.e., whether the independent variables (LTDA and LTDE) collectively have a statistically significant relationship with the dependent variable (NPS). The corresponding Prob(F-statistic) value of 0.000346 is much smaller than the significance level of 0.05, suggesting that the model as a whole is statistically significant. In other words, the regression model is a meaningful predictor of shareholder value in the context of long-term debt ratios.

4.3.1 Test of Hypothesis I

Ha1) Increase in long-term debt to asset ratio will significantly contribute to shareholder value diminution.

The coefficient for Long-term Debt to Asset Ratio (LTDA) is -42.56871 with a p-value of 0.0003. This suggests that for every one-unit increase in the LTDA, the shareholder value decreases by approximately 42.57 units, holding other variables constant. The negative coefficient indicates a diminutive effect on shareholder value, implying that as the proportion of assets financed by long-term debt increases, the net asset per share tends to decrease. This result is statistically significant at the 5% level, as the p-value is much lower than the threshold of 0.05. Therefore, the study finds that an increase in long-term debt to asset ratio significantly contributes to shareholder value diminution (β = -42.56871; p-value of 0.0003).

4.3.2 Test of hypothesis II

Ha2) Increase in long-term debt to equity ratio will significantly contribute to shareholder value diminution.

The coefficient for Long-term Debt to Equity Ratio (LTDE) is -5.441092 with a p-value of 0.0005. This implies that for every one-unit increase in the LTDE, the Shareholder Value (proxy by net asset per share) decreases by approximately 5.44 units, assuming all other factors remain unchanged. The negative coefficient again signals a diminutive effect on shareholder value, indicating that an increase in long-term debt relative to equity leads to a reduction in the net asset per share. The p-value of 0.0005 is significantly lower than 0.05, confirming that this effect is statistically significant at the 5% level. Hence, an increase in the long-term debt to equity ratio significantly contributes to shareholder value diminution (β = -5.441092; p-value of 0.0005).

4.4 Discussion of Findings

The results of the study, which show that an increase in the long-term debt to asset ratio significantly contributes to shareholder value diminution (β = -42.56871; p-value = 0.0003), suggest that the over-leveraging of companies can reduce their overall financial performance, thereby eroding shareholder value. This finding is consistent with the Static Trade-Off Theory, which posits that while debt financing can provide tax benefits, excessive debt leads to financial distress costs, which can overwhelm the potential benefits. The negative impact of the long-term debt to asset ratio on shareholder value can be attributed to increased debt obligations, which diminish the firm's profitability and expose it to higher bankruptcy risks. The significant negative coefficient indicates that companies with higher debt relative to their assets experience a more pronounced decrease in shareholder value, likely due to the strain on cash flow and the increased risk of default.

Supporting this finding, several studies have shown the negative effects of long-term debt on firm value. For example, Apergis and Sorros (2011) found that long-term debt obligations significantly reduced firm value for internationally listed manufacturing firms. Similarly, Jibrin et al. (2024) observed a significant negative impact of long-term debt on return on equity (ROE) and return on assets (ROA) in cement manufacturing firms. Oko and Elemi (2023) found a significant negative relationship between long-term debt ratio and cash value added among industrial goods firms in Nigeria. Additionally, Anozie et al. (2023) discovered a significant negative effect of long-term debt on total assets on return on assets in Nigerian oil and gas companies, further corroborating the detrimental effect of high long-term debt ratios on firm performance.

The second finding, which shows that an increase in the long-term debt to equity ratio significantly contributes to shareholder value diminution (β = -5.441092; p-value = 0.0005), suggests that increasing reliance on debt financing, relative to equity, has a detrimental impact on shareholder value. According to the Static Trade-Off Theory, while debt financing can offer some advantages, such as tax shields, higher leverage ratios can increase the risk of financial distress, which ultimately reduces shareholder returns. Thus, Endri, Supeni, et al. (2021) submitted that an optimal capital structure is one that has achieved a balance between the cost and the benefits of debts. In this case, the negative coefficient indicates that higher levels of debt relative to equity lead to greater financial risk, which in turn diminishes the value of the firm as perceived by shareholders. Companies with a higher debt-to-equity ratio are more vulnerable to market fluctuations and economic downturns, which can lead to decreased stock prices and reduced value for shareholders.

Several empirical studies provide support for this finding, demonstrating the negative effects of long-term debt to equity ratios on firm performance. Farah, Amin, and Pramudianto (2021) found a significant negative effect of long-term debt to equity ratio on profitability in food and beverage companies. Equally, Appiah et al. (2020) discovered that long-term debt to total assets had a negative but insignificant effect on corporate performance in Ghana, suggesting that the influence of long-term debt can vary depending on the firm's capital structure and other external factors. On the other hand, Endri, Ridho, Marlapa, and Susanto (2021) found a contrary result that the long-term debt to equity ratio positively affects return on equity, thereby leading to shareholders' value creation. Similarly, Aderemi (2024) observed a positive relationship between long-term debt ratio and return on equity for consumer goods firms, but the magnitude of the effect was not sufficient to support significant value creation. Muthoni et al. (2019) also found that debt financing had a statistically significant positive impact on economic value added (EVA), a measure of shareholder value, but the benefits of debt appeared to be limited.

5. Conclusion

5.1 Conclusion

The findings of this study indicate that an increase in long-term debt, when measured by the debt-to-asset or debt-to-equity ratios, significantly diminishes shareholder value in Nigeria's oil and gas sector. The negative coefficients suggest that leveraging debt financing beyond an optimal level has a detrimental impact on the net asset per share, a key indicator of shareholder wealth. This outcome reflects the potential risks associated with excessive debt accumulation, where the benefits of leverage, such as tax shields, fail to outweigh the escalating costs of financial distress. The findings further

highlight the potential for increased financial vulnerability within the industry. The oil and gas sector in Nigeria, with its inherent exposure to volatile global oil prices, may be particularly susceptible to the risks of over-leverage. The results emphasise how high levels of long-term debt, especially when relative to assets and equity, contribute to shareholder value erosion. As firms take on more debt, their ability to weather economic shocks and operational disruptions may be compromised, resulting in a negative effect on investor confidence and, consequently, shareholder value.

Additionally, the static trade-off theory, which posits that firms balance the tax benefits of debt against the costs of financial distress, seems to be poorly applied. Instead of optimizing the capital structure to maximize shareholder wealth, the firms appear to be burdened by excessive debt, leading to value destruction. This misalignment could signal a disconnect between the firms' financial strategies and the broader economic realities of operating in an oil-dependent economy such as Nigeria, where external shocks and uncertainties play a significant role in determining financial outcomes. In conclusion, the over-reliance on long-term debt financing contributes to heightened financial vulnerability as well as sabotages the aim of maximising shareholders' wealth.

5.2 Recommendations

We recommend that:

1) The management of companies in the Nigerian oil and gas industry implements stricter controls on their long-term debt to asset ratios by setting a threshold beyond which debt levels should not increase, ensuring that companies maintain an optimal balance between debt financing and asset base to avoid significant shareholder value erosion.

2) Investors in the Nigerian oil and gas industry should closely monitor the capital structure of companies they invest in, particularly focusing on debt levels relative to assets and equity, to make informed decisions that align with their risk tolerance and long-term investment goals.

5.3 Limitation to the Study

A major limitation of this study is the use of secondary data from only five out of the nine listed oil and gas firms in Nigeria, which may not fully represent the entire industry. The focus on a limited number of firms, particularly those listed between 2014 and 2023, could lead to potential biases, as these companies may not exhibit the same financial characteristics or responses to long-term debt as others. Additionally, the use of net assets per share as the sole indicator of shareholder value might not fully capture the multidimensional nature of shareholder returns, such as stock price movements or dividends. These factors may restrict the generalizability of the findings to all listed oil and gas firms in Nigeria.

5.2 Suggestion for Further Studies

For further research, it would be beneficial to expand the scope of the study to include a larger sample size from other sectors in Nigeria and beyond, allowing for more robust comparisons across different industries. Future studies could also explore other measures of shareholder value, such as stock price appreciation, earnings per share, or dividend payouts, to provide a more comprehensive analysis. Furthermore, it would be valuable to investigate the moderating impact of macroeconomic factors, such as inflation and exchange rates, on the relationship between long-term debt and shareholder value, as these external factors may influence corporate decision-making and financial performance.

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