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I. Title page
II. Abstract (150-250 words)
III. Keywords (3-5)
IV. Introduction
V. Literature Review
VI. Methodology
VII. Results and Discussion
VIII. Conclusion and Recommendations
IX. References (APA 7th Edition)
X. Appendices (if necessary)
XI. Author Biographies (optional)

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DETERMINANTS OF CORPORATE SOCIAL RESPONSIBILITY OF LISTED OIL AND GAS FIRMS IN NIGERIA

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ABSTRACT

This study explores the determinants of corporate social responsibility (CSR) of listed oil and gas firms in Nigeria, focusing on firm size, firm age, firm profitability, and firm growth. The study employs a census sampling technique and collected data from the 9 oil and gas firms listed on the Nigerian Exchange Group. Stata 13 software was employed as the tool for analysis while the Ordinary Least Square (OLS) Regression technique was used to test the hypotheses. The findings reveal that while firm age and profitability have significant effect on CSR, firm size and growth do not significantly affect CSR. These findings suggest that older firms and those with higher profitability are more likely to allocate resources for CSR activities, whereas firm size and firm growth do not necessarily drive CSR. The study recommends that profitable firms reinvest a portion of their financial gains into meaningful CSR activities. In addition, oil and gas firms should establish formal CSR programs that integrate profit-making objectives with social and environmental responsibilities.

Keywords: CSR, firm profitability, firm age, firm size, firm growth, oil and gas firms.

1. Introduction

Corporate Social Responsibility (CSR) has evolved from a peripheral concern to a core element of corporate strategy, reflecting a company's commitment to ethical behavior, environmental sustainability, and social well-being (Hossain, et al.,2020). In the context of the oil and gas industry, particularly in Nigeria, CSR activities are critical due to the industry's significant environmental impact and its substantial influence on local communities and the national economy. This paper examines the determinants of CSR activities among listed oil and gas firms in Nigeria, focusing on four key variables: firm size, firm age, firm profitability, and firm growth.

Nigeria, as one of Africa's largest oil producers, has experienced both the benefits and challenges associated with its vast oil and gas reserves. The industry has been a cornerstone of the Nigerian economy, contributing significantly to government revenue and foreign exchange earnings (Mudi & Brimah, 2020). However, the sector has also been linked to numerous environmental and social issues, including oil spills, gas flaring, and conflicts with host communities (Olujobi & Oyewunmi, 2020). These challenges underscore the importance of CSR initiatives in mitigating negative impacts and fostering sustainable development.

In recent years, there has been a growing recognition of the need for oil and gas firms to engage in CSR activities that address the environmental and social challenges they face. This has led to increased expenditure on CSR activities aimed at improving community relations, environmental protection, and socio-economic development (Adeyanju, 2018). Despite this trend, the determinants of CSR in the Nigerian oil and gas sector remain underexplored, particularly in terms of how firm-specific characteristics influence CSR activities.

The Nigerian oil and gas industry is pivotal to the nation's economy, yet it is also a sector fraught with environmental degradation and socio-economic disruptions. The industry's operations have led to significant ecological damage, health hazards, and conflicts with local communities (Nwokeji et al., 2022). Consequently, the role of CSR has become increasingly crucial as a means of addressing these adverse effects and promoting sustainable development. CSR in the oil and gas industry typically encompasses initiatives aimed at reducing environmental impact, enhancing community welfare, and supporting local economies (Ojo et al., 2018). These initiatives range from environmental conservation programs and health and education projects to infrastructure development and capacity-building activities (Adebiyi & Emeahara, 2018). However, the effectiveness and scope of these CSR activities can vary widely among firms, influenced by various determinants such as firm size, firm age, firm profitability, and firm growth.

In the Nigerian oil and gas sector, Corporate Social Responsibility (CSR) initiatives are marked by significant inconsistency and, in many cases, inadequacy. Some firms have made notable progress in CSR, while others engage only minimally, with efforts often seen as tokenistic (Hameed et al., 2018). This inconsistency prompts critical questions about the underlying factors that drive CSR activities within the industry. Despite theoretical insights and empirical evidence, the role of firm-specific characteristics in shaping CSR activities is not well understood. The environmental and social challenges associated with Nigeria's oil and gas industry demand robust and effective CSR initiatives. However, the varying levels of commitment and performance across firms reveal a disconnect between CSR expectations and actual practices (Owolabi, 2018). Bridging this gap is essential for improving overall CSR performance in the sector and ensuring that these initiatives contribute meaningfully to sustainable development.

Empirical research has identified several determinants that influence CSR activities, including firm size, firm age, profitability, and firm growth. Larger firms, with more resources and greater visibility, tend to engage more in CSR (Maqbool & Zameer, 2018). Older firms may have more established CSR practices (Fodio et al., 2012), while profitable firms are more likely to allocate resources to CSR (El-Kassar & Singh, 2019). Firm growth also impacts CSR activities though its influence can vary (Ali et al., 2019). Despite these insights, significant gaps remain, especially in the context of the Nigerian oil and gas industry. Much of the existing research focuses on developed economies, with limited attention to emerging markets like Nigeria (Egbe & Olayinka, 2020). The unique socio-economic, environmental, and regulatory context of Nigeria requires specific studies to understand CSR dynamics. Furthermore, research often examines individual determinants of CSR in isolation, without considering how these factors interact (Okoye et al., 2019). This fragmented approach limits the understanding of how firm-specific characteristics collectively influence CSR activities.

Finally, most studies are cross-sectional, providing only a snapshot of CSR practices at a single point in time. There is a need for more comprehensive, longitudinal studies that track CSR activities over time to better understand the evolution of CSR practices and the long-term impact of firm-specific determinants (Ujunwa & Modebe, 2018). Addressing these gaps is crucial for advancing the understanding of CSR in the Nigerian oil and gas industry and enhancing the effectiveness of CSR initiatives in contributing to sustainable development.

Understanding the determinants of CSR in the Nigerian oil and gas industry is critical for enhancing the sector's contribution to sustainable development. By examining the roles of firm size, firm age, profitability, and firm growth this paper aims to shed light on the factors that drive CSR activities among listed oil and gas firms in Nigeria. Addressing the literature gaps and practical problems identified will provide a more comprehensive understanding of CSR dynamics and inform policies and strategies to improve CSR outcomes in the industry. In this context, this study seeks to investigate the determinants of CSR activities of listed oil and gas firms in Nigeria. The study tests the following hypotheses, which are stated in the null form:

$H0_1$: Firm size has no significant effect on CSR of listed oil and gas firms in Nigeria.
$H0_2$: Firm age has no significant effect on CSR of listed oil and gas firms in Nigeria.
$H0_3$: Firm profitability has no significant effect on CSR of listed oil and gas firms in Nigeria.
$H0_4$: Firm growth has no significant effect on CSR of listed oil and gas firms in Nigeria.

2. Literature Review

Conceptual Review

Corporate Social Responsibility* (*CSR)

Corporate Social Responsibility (CSR) refers to the extent to which a company successfully integrates and implements ethical, environmental, and social considerations into its business operations and interactions with stakeholders. It encompasses a range of activities, including environmental conservation efforts, community development projects, fair labor practices, and transparent governance (Hameed et al., 2018). Measuring CSR often involves evaluating the resources allocated to CSR initiatives, the outcomes and impacts of these activities, and the extent to which they align with both the company's strategic goals and societal expectations (Ali et al., 2019). Effective CSR is not only a reflection of a company's commitment to sustainable and responsible business practices but also a key factor in enhancing corporate reputation, stakeholder trust, and long-term financial success (El-Kassar & Singh, 2019). In the context of the oil and gas industry, CSR is particularly crucial due to the sector's significant environmental footprint and its socio-economic implications for local communities and broader society (Adeyanju, 2018).

Firm Size

Firm size refers to the scale of a company's operations and can be measured using various metrics such as the number of employees, total assets, market capitalization, or annual revenue. Larger firms often have more substantial resources, including financial capital, human talent, and technological infrastructure, which can provide them with competitive advantages in their respective markets (Maqbool & Zameer, 2018). These resources enable large firms to engage in extensive research and development, pursue aggressive marketing strategies, and achieve economies of scale that smaller firms might find challenging. In the context of Corporate Social Responsibility (CSR), firm size is a crucial determinant because larger firms typically have more capacity to allocate resources toward CSR initiatives, comply with regulatory requirements, and engage in voluntary sustainability efforts (Khan et al., 2019). Moreover, larger firms often face greater scrutiny from the public, investors, and regulators, which can further drive their commitment to CSR activities (Ali et al., 2019). Thus, understanding firm size is essential for analyzing how different companies approach and implement CSR strategies.

Firm Age

Firm age refers to the length of time a company has been in operation since its establishment. It is an important organizational characteristic that can influence various aspects of business performance and strategy. Older firms often have more established reputations, extensive customer bases, and seasoned management practices, which can contribute to their stability and resilience in the market (Hossain et al., 2020). These firms are likely to have accumulated substantial industry experience, which can enhance their competitive edge and operational efficiency. In the realm of Corporate Social Responsibility (CSR), firm age can be a significant determinant because older firms may have more developed and institutionalized CSR practices and policies (Khan et al., 2019). They are likely to have built long-term relationships with stakeholders and gained deeper insights into the social and environmental impacts of their operations. Additionally, older firms might feel a stronger obligation to uphold their legacy and maintain their public image, which can drive sustained commitment to CSR activities (El-Kassar & Singh, 2019). Thus, understanding firm age is crucial for analyzing how a company's history and experience shape its approach to CSR and overall corporate governance.

Firm profitability

Fie profitability refers to a company's ability to generate earnings relative to its expenses and other costs incurred during a specific period. It is a key indicator of a firm's financial health and operational efficiency commonly measured using metrics such as net profit margin, return on assets (ROA), and return on equity (ROE) (El-Kassar & Singh, 2019). High profitability signifies that a company effectively converts its revenues into profit, indicating robust management practices, competitive advantages, and successful market strategies. In the context of Corporate Social Responsibility (CSR), profitability plays a crucial role as it provides the financial capacity for firms to invest in sustainable practices and social initiatives (Hameed et al., 2018). Companies with higher profitability are more likely to have the necessary resources to undertake extensive CSR activities such as community development projects, environmental conservation efforts, and ethical labor practices (Ali et al., 2019). Additionally, profitable firms may perceive CSR as a strategic investment that can enhance their brand reputation, customer loyalty, and long-term sustainability. Therefore, understanding profitability is essential for analyzing how financial performance influences a firm's commitment to and execution of CSR strategies.

Firm Growth

Firm growth refers to the expansion of a company's operations and market presence over time, often measured by indicators such as revenue increases, market share expansion, asset accumulation, or workforce enlargement (Hameed et al., 2018). Growth can be a sign of a firm's success and potential for future development, driven by factors such as increased sales, new market opportunities, strategic investments, and innovation (Maqbool & Zameer, 2018). In the context of Corporate Social Responsibility (CSR), firm growth plays a significant role in shaping a company's approach to social and environmental initiatives (El-Kassar & Singh, 2019). Growing firms typically have greater financial resources and a larger operational scale, which can enable them to undertake more substantial and diverse CSR activities, from environmental conservation to community development projects (Khan et al., 2019). Moreover, as firms grow, they often face increased scrutiny from stakeholders and regulatory bodies, which can drive a more proactive stance on CSR to manage reputational risks and meet societal expectations (Ali et al., 2019). Conversely, rapid growth can also pose challenges, such as balancing resource allocation between expansion efforts and CSR commitments and ensuring that CSR strategies align with both business objectives and stakeholder demands (Adebiyi & Emeahara, 2018). Thus, understanding firm growth is essential for analyzing how a company's expansion influences its CSR practices and overall sustainability strategy.

Empirical Studies Review

This section reviews the empirical studies on the determinants of CSR with focus on firm size, firm age, firm profitability and firm growth.

Firm Size and Corporate Social Responsibility (CSR)

Maqbool and Zameer (2018) conducted a study on Indian banks, utilizing a quantitative analysis technique, specifically regression analysis, to examine the correlation between firm size and CSR expenditures. Their findings revealed a positive relationship, suggesting that larger firms are better positioned to allocate resources for extensive CSR initiatives due to their financial strength and broader market presence. Similarly, Khan et al. (2019) explored CSR practices in Pakistan using a panel data analysis technique to assess the impact of firm size on CSR engagement. Their results indicated that larger firms are more likely to participate in CSR activities, largely because of their higher visibility and greater accountability to stakeholders.

Hameed et al. (2018) supported these findings through a mixed-methods approach, combining both quantitative analysis and qualitative interviews. Their study highlighted that larger corporations in emerging markets tend to allocate more resources to CSR as part of their strategic efforts to manage stakeholder relationships and maintain competitive advantages. However, the relationship between firm size and CSR is not always straightforward. Murekefu and Ouma (2020) conducted a study in Kenya using a case study analysis technique, revealing mixed results. They found that the extent of CSR engagement by larger firms varied depending on industry-specific factors and stakeholder pressures, indicating that firm size alone does not uniformly predict CSR activities.

El-Kassar and Singh (2019) employed a content analysis technique to assess CSR reports and activities of large firms. Their study pointed out that while large firms generally have more resources for CSR, this does not always translate into more effective or impactful CSR initiatives. Some large firms might engage in tokenistic CSR efforts primarily for public relations purposes rather than genuine social responsibility.

These studies collectively underscore the complex relationship between firm size and CSR, showing that while firm size can be a significant determinant of CSR engagement, other contextual factors and the strategic intentions of firms also play crucial roles.

Firm Age and Corporate Social Responsibility (CSR)

Firm age has emerged as a key variable in CSR research, with many studies highlighting that older firms tend to have more developed and institutionalized CSR practices. For instance, Hossain et al. (2020) aimed to explore the relationship between firm age and CSR practices within Nigerian companies. The study employed regression analysis, using firm age as a primary variable and assessing the comprehensiveness of CSR activities as a measure of CSR practices. Drawing from a broad sample of Nigerian firms, the findings revealed that older firms exhibit more comprehensive CSR practices. This was attributed to their long-standing experience and historical relationships with stakeholders, which contribute to stronger and more institutionalized CSR policies. Similarly, Khan et al. (2019) examined how firm age influences CSR practices within Pakistani firms. The study utilized panel data analysis to assess the impact of firm age on the presence of established CSR practices. Their research also supported the view that older firms are more likely to have developed robust CSR practices due to their accumulated experience and long-term engagement with stakeholders. The sample for this study included firms across various sectors in Pakistan, providing a broad perspective on how firm age correlates with CSR activities.

Javed et al. (2021) took this inquiry further by investigating the role of firm age in the adoption of CSR strategies, particularly in relation to long-term sustainability. Through a longitudinal analysis of a diverse set of older firms, the study found that these firms often integrate CSR strategies as part of their efforts to ensure sustainability and preserve their legacy. This research highlighted that, beyond merely having established CSR practices, older firms are more likely to see CSR as integral to their long-term business strategies, thereby contributing to their enduring market presence. However, the relationship between firm age and CSR performance is not always straightforward. Yadav and Pathak (2020) explored this complexity by analyzing the non-linear relationship between firm age and CSR performance. The study used non-linear regression models to account for the influence of variables such as historical focus and managerial attitudes toward CSR. Their findings suggested that while older firms often possess more resources to allocate toward CSR, their actual performance in CSR can vary significantly. This variance is influenced by factors such as the firm's historical priorities and the attitudes of its management toward social responsibility, indicating that firm age alone does not uniformly predict CSR effectiveness.

In addition, Hossain et al. (2020) conducted a comparative study in Bangladesh, which showed that older firms in this context did not necessarily outperform newer firms in CSR. This suggests that other contextual factors, such as the regulatory environment, cultural expectations, and industry-specific challenges, play a significant role in shaping CSR activities, even for older firms with more established practices. These studies collectively indicate that while firm age is a significant determinant of CSR practices, the relationship between firm age and CSR is nuanced and influenced by a range of contextual and internal factors. This complexity underscores the need for a more comprehensive understanding of how firm age interacts with other variables to shape CSR outcomes across different settings.

Firm Profitability and CSR

Ali et al. (2019) aimed to investigate the connection between firm profitability and CSR investment in Pakistan. The study's objective was to determine how higher financial returns influence firms' willingness to allocate resources toward social and environmental initiatives. The researchers used a sample of Pakistani firms and employed regression analysis to assess the relationship between profitability, measured by financial returns, and CSR investments. Their findings demonstrated that profitable firms are indeed more likely to invest in CSR activities, as their higher financial returns enable them to allocate resources for such initiatives. In a similar vein, Maqbool and Zameer (2018) examined Indian banks to understand the impact of profitability on CSR engagement. The study focused on banks with varying profitability levels and used a quantitative analysis technique to explore the correlation between profitability and CSR activities. The results supported the notion that Indian banks with higher profitability are more inclined to engage in CSR, reinforcing the idea that financial success facilitates greater involvement and investment in CSR.

El-Kassar and Singh (2019) investigated how profitability influences CSR as a strategic investment. Their study aimed to assess whether firms with higher profitability are better positioned to pursue CSR and enhance their market reputation and long-term success. Using a sample of firms from multiple industries and employing content analysis of CSR reports, the researchers found that profitable firms are indeed in a better position to use CSR strategically, enhancing their market reputation and long-term viability. Despite these findings, the relationship between profitability and CSR is not always straightforward. Wang and Jusoh (2020) conducted a study to explore how profitability impacts CSR performance while considering the potential for firms to prioritize short-term financial gains over long-term CSR investments. The study utilized a sample of firms and employed panel data analysis to reveal that profitability can influence CSR performance, but firms might sometimes focus on immediate financial benefits rather than investing in long-term CSR initiatives. This results in varied CSR outcomes among profitable firms.

Similarly, Kumar et al. (2021) examined the disconnect between profitability and CSR performance. The objective was to determine whether high profitability always leads to better CSR performance or if firms might engage in CSR activities merely for public relations purposes. The study used a mixed-methods approach, including both quantitative analysis of financial data and qualitative interviews, to find that high profitability does not necessarily equate to more effective CSR. Some firms may engage in CSR primarily for public relations rather than achieving genuine social impact. From this review, it is noteworthy that while there is a general positive relationship between profitability and CSR, this relationship is complex and influenced by various factors. Profitability can enable firms to invest in CSR, but the extent and effectiveness of these investments can vary based on the firm's strategic priorities, the nature of its CSR activities, and its approach to balancing short-term gains with long-term social impact.

Firm Growth and CSR

Khan et al. (2019) investigated the relationship between firm growth and CSR performance with the objective of determining how expansion influences CSR activities. The study used a sample of firms across different sectors in Pakistan and employed regression analysis to explore the link between firm growth, measured by metrics such as revenue growth and market expansion, and CSR performance. Their findings indicated a positive relationship, suggesting that as firms grow, they are more likely to enhance their CSR activities to build a favorable public image and address stakeholder expectations. Similarly, El-Kassar and Singh (2019) aimed to examine how firm growth correlates with CSR engagement. The study analyzed a sample of firms from various industries and utilized content analysis of CSR reports to assess the extent and nature of CSR activities. The researchers found that firm growth is associated with increased CSR engagement, as expanding firms typically have more resources and opportunities to undertake a broader range of CSR initiatives.

Javed et al. (2021) focused on understanding how firm growth influences CSR investment as part of strategic efforts to solidify market position and promote sustainable development. The study used a longitudinal approach, tracking firms over time to observe changes in CSR practices relative to their growth. Their results showed that growing firms are more likely to invest in CSR, integrating it into their strategies to strengthen their market position and support long-term sustainability.

However, the relationship between firm growth and CSR is not always straightforward. Murekefu and Ouma (2020) explored this complexity by examining how industry-specific conditions and strategic priorities affect the growth and CSR relationship. Using a sample of firms from Kenya and employing case study analysis, they found that while firm growth generally leads to increased CSR activities, this relationship can be influenced by factors such as industry norms and the firm's strategic focus. In the same vein, Teng et al. (2021) highlighted another dimension of this relationship by investigating the effects of rapid growth on CSR performance. The study's objective was to understand how rapid expansion might impact CSR commitments. Using a sample of rapidly growing firms and applying panel data analysis, the researchers found that rapid growth can sometimes lead to CSR neglect, as firms may prioritize expansion over maintaining a balance between growth and CSR commitments.

These studies demonstrated that while firm growth generally has a positive impact on CSR, the relationship is nuanced and affected by various factors such as industry conditions, strategic priorities, and the pace of growth. Growing firms often have more resources to invest in CSR, but the effectiveness and focus of these activities can vary depending on the firm's specific circumstances and growth strategies.

Theoretical Framework

This study employs the legitimacy theory to explain the determinants of CSR. The legitimacy theory is relevant because it provides a comprehensive framework for understanding why firms engage in CSR activities and how these activities contribute to their legitimacy. It explains that firms seek to align their practices with societal expectations to gain and maintain approval from their stakeholders (Suchman, 1995). Empirical evidence supports this view, showing that CSR initiatives are strategic tools used by firms to manage public perceptions, address legitimacy threats, and foster positive stakeholder relationships (Morsing & Schultz, 2006; Godfrey, 2005). However, the theory has also faced critiques for its focus on reactive CSR measures and the need for a more nuanced understanding of both internal and external drivers of CSR performance (Colyvas & Powell, 2006; Linnenluecke & Griffiths, 2010).

Despite these critiques, Legitimacy Theory remains a foundational framework for analyzing CSR practices and their impact on corporate legitimacy and stakeholder relationships. In this research, legitimacy theory is relevant because it provides insight into how Nigerian oil and gas firms use CSR to align with societal expectations and mitigate reputational risks amid environmental and social challenges. By understanding how firms seek to legitimize their operations through CSR, the study can reveal the factors driving varying levels of CSR engagement and performance in the sector.

3. Methodology

This study utilizes the ex-post facto design to investigate the determinants of corporate social responsibility (CSR) among listed oil and gas firms in Nigeria. The ex-post facto design involves observing and analyzing pre-existing data to identify relationships between variables without any intervention or manipulation by the researcher (Khan et al., 2019). By examining historical data from annual reports, the study aims to determine the impact of firm size, firm age, firm profitability, and firm growth on CSR.

To achieve the study objectives, the target population includes all nine listed oil and gas firms in Nigeria. Given the specific focus on CSR practices within this sector, the sample was collected using a census sampling technique. Data for the study were gathered from secondary sources, primarily the annual reports of the selected oil and gas firms over an 8-year period from 2016 to 2023. The provides a comprehensive historical perspective on CSR practices and firm performance, capturing relevant trends and changes in the oil and gas sector over a significant time frame. These reports offer comprehensive information on financial performance, CSR activities, board composition, and other pertinent variables. They were accessed through company websites, regulatory bodies, and financial databases. Secondary data is used in this research to leverage existing information and analyses, which allows for a broader and more efficient exploration of CSR practices and their determinants across multiple firms and contexts.

Furthermore, the dependent variable in the study is corporate social responsibility performance, while the independent variables are firm size, firm age, firm profitability, and firm growth. Panel regression analysis was used to test the hypotheses and examine the relationships between the independent and dependent variables. Panel regression is particularly suitable for analyzing longitudinal data, such as annual reports from multiple firms over several years (Akanbi & Ofoegbu, 2018). This method allows for controlling individual heterogeneity across firms and capturing the effects of time-related factors. Stata 13 software is used to analyze the data.

This study adopts regression model from previous empirical studies with modifications (Hameed et al., 2020; Kumar et al., 2021). The following regression model was used to test the hypotheses.

$$CSR_{it} = \alpha_0 + \beta_1 FSZ_{it} + \beta_2 AGE_{it} + \beta_3 PRO_{it} + \beta_4 GRW_{it} + \varepsilon_{it}$$

Where
CSR = corporate social responsibility
FSZ = Firm size
AGE = Firm age
PRO = Firm Profitability
GRW = Firm Growth

Table 1
Definition and Measurement of Variables

Variable Acronym	Definition	Measurement	Source
CSR	Corporate social responsibility	Total money spent CSR activities divided by total assets	Aknabi & Ofoebu , 2018
FSZ	Firm size	Natural logarithm of total assets	Olujobi, & Oyewunmi, 2020
Age	Firm Age	The number of years the firm is listed on the NSE	Ali et al., 2019
PRO	Firm Profitability	Earnings before interest and tax divided by total assets	Kumar et al., 2021
GRW	Firm growth	Percentage change in turnover	Maqbool & Zameer, 2018

Source: Author, 2024

4. Results and Discussion
This section presents the results of the study. The paper presents descriptive analysis, correlation analysis, diagnostic tests (multicollinearity and heteroscedasticity) and regression analysis. Table 2 below presents the descriptive analysis.

Table 2
Descriptive Analysis

Variable	Obs	Mean	Std. Dev.	Min	Max
csr	72	.1670833	.1786849	.001	.752
fsz	72	7.707542	.5825317	6.29	8.684
age	72	22.98611	7.412386	9	39
pro	72	17.22547	17.47949	-34.02	52.795
grw	72	4.924917	3.008441	-1.036	9.88

The descriptive analysis of Corporate Social Responsibility (CSR), measured as the total amount spent on social responsibility divided by total assets, reveals significant insights into the CSR performance of listed oil and gas firms in Nigeria. The mean value of 0.167 indicates that, on average, firms allocate 16.7% of their total assets to CSR activities, reflecting a substantial commitment to social responsibility. However, the high standard deviation of 0.179 suggests considerable variability in CSR among firms, highlighting differing levels of priority given to CSR. The minimum value of 0.01 shows that some firms allocate only 1% of their assets to CSR, indicating minimal engagement in such activities, while the maximum value of 0.752 reveals that at least one firm allocates as much as 75.2% of its assets to CSR, underscoring a significant commitment by some firms. This wide range in CSR (0.01 to 0.752) demonstrates the diverse approaches to CSR among these firms, influenced by factors such as firm size, profitability, leverage, and board composition.

Firm size, measured as the natural logarithm of total assets, has a mean of 7.707, indicating that the average size of these firms is substantial. The standard deviation of 0.582 suggests moderate variability in firm size, meaning that while most firms are relatively similar in size, there are some differences. The minimum value of 6.29 shows the smallest firm in the sample has a significantly lower asset base compared to others, whereas the maximum value of 8.684 indicates the largest firm has a considerably higher asset base. This range from 6.29 to 8.684 reflects a notable diversity in firm size within the industry, suggesting the presence of both smaller and larger players in the market.

Firm age has a mean of 22.986 years, which indicates that, on average, these firms have been operational for nearly 23 years, suggesting a relatively mature industry. The standard deviation of 7.412 reflects a high level of variability in the age of the firms, indicating a wide range of operational histories. The minimum firm age of 9 years shows that some firms are relatively new entrants to the market, while the maximum firm age of 39 years highlights the presence of long-established companies. This wide age range (9 to 39 years) demonstrates a mix of both newer and more experienced firms within the Nigerian oil and gas sector.

Firm profitability, measured as the return on assets (ROA), has a mean of 17.225, indicating that, on average, the firms generate a return of 17.225% on their total assets. The standard deviation of 17.479 suggests substantial variability in profitability among the firms, with significant differences in financial performance. The minimum value of -34.02 indicates that some firms experience considerable losses, whereas the maximum value of 52.795 shows that other firms achieve very high profitability. This wide range from -34.02 to 52.795 reflects the diverse financial outcomes within the industry, with some firms struggling while others thrive.

Firm growth, measured as the growth rate, has a mean of 4.924, suggesting that, on average, the firms experience a growth rate of 4.924%. The standard deviation of 3.008 indicates moderate variability in growth rates among the firms, showing some differences in their expansion rates. The minimum value of -1.036 indicates that some firms have experienced a decline in growth, while the maximum value of 9.88 highlights that other firms have achieved significant growth. This range from -1.036 to 9.88 demonstrates the varying growth dynamics within the sector, with some firms facing challenges in expansion while others are experiencing robust growth.

Next is the correlation analysis, which shows the relationships among the pairs of variables examined.

Table 3
Correlation Analysis

	csr	fsz	age	pro	grw
csr	1.0000				
fsz	0.0322	1.0000			
age	0.4900	0.1288	1.0000		
pro	0.3944	-0.1677	0.1277	1.0000	
grw	0.0768	0.2212	-0.0476	-0.0914	1.0000

The correlation table shows that all the independent variables have positive associations with CSR indicating that as firm size, firm age, firm profitability, and firm growth increase, all things being equal CSR also increases. However, firm age and firm profitability seem to have more robust positive relationships with CSR. Firm size and firm growth have weaker positive correlations with CSR performance. Further examination of the correlation values reveals a mild correlation among the independent variables, indicating that there are no excessively high correlations between them. According to Guajarati (2004), correlation values below 0.80 suggest the absence of multicollinearity among the independent variables.

The study tests two specific assumptions of the OLS regression, namely multicollinearity and heteroscedasticity tests. The multicollinearity test checks for the existence of exact correlation among the independent variables, while the heteroscedasticity test checks for the constant variance of the error term. Table 4 presents the multicollinearity test.

Table 4
Multicollinearity Test

Variable	VIF	1/VIF
fsz	1.11	0.903865
grw	1.06	0.943273
pro	1.06	0.947282
age	1.05	0.955645
Mean VIF	1.07	

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of csr

         chi2(1)      =    19.14
         Prob > chi2  =   0.0000
```

The multicollinearity test revealed that there are no perfect correlations among the pairs of independent variables. This conclusion is since all VIF values are below 10, and tolerance values consistently exceed 0.10. These results indicate the absence of multicollinearity among the independent variables. In addition, the heteroscedasticity test shows a chi2 of 19.14, which is significant at the 5% level. This study employs the robust OLS to correct for the existence of heteroscedasticity. Table 5 below presents the OLS regression with robust standard errors.

Table 5
Regression Analysis

```
Linear regression                               Number of obs =       72
                                                F(  4,    67) =     7.24
                                                Prob > F      =   0.0001
                                                R-squared     =   0.3688
                                                Root MSE      =   .14614
```

csr	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
fsz	.0012505	.0304265	0.04	0.967	-.059481	.061982
age	.0108724	.0023561	4.61	0.000	.0061696	.0155751
pro	.0035706	.0014073	2.54	0.014	.0007617	.0063795
grw	.0076819	.007614	1.01	0.317	-.0075157	.0228795
_cons	-.1918066	.222794	-0.86	0.392	-.6365053	.252892

The F. value of 7.24, which is significant at the 5% level, indicates that the model is fit in explaining the impact of the dependent variables of CSR. The correlation value of 0.3688 shows that the independent variables explain about 37% of the changes in CSR performance of the oil and gas firms in Nigeria. Regarding hypothesis one, the coefficient of 0.001 suggests that firm size has a very minimal positive effect on CSR. However, the t-value of 0.04, which is significantly lower than the conventional threshold of 2.0 for statistical significance, indicates that this effect is not statistically significant. Furthermore, the p-value of 0.967 is substantially higher than the common significance level of 0.05, reinforcing that the relationship between firm size and CSR is not statistically significant. This study fails to reject the null hypothesis one and concludes that firm size does not have a significant impact on CSR in this model.

The result on the second hypothesis shows that coefficient of 0.011 suggests that for each additional year in firm age, CSR increases by 0.011 units. The t-value of 4.61, which is well above the conventional threshold of 2.0, indicates that this effect is statistically significant. The p-value of 0.000 is also well below the common significance level of 0.05, further confirming the statistical significance of the relationship. Therefore, this study rejects null hypothesis two and concludes that firm age has a significant positive impact on CSR.

For hypothesis three, the coefficient of 0.004 suggests that for each unit increase in firm profitability, CSR increases by 0.004 units. The t-value of 2.54, which is above the conventional threshold of 2.0, indicates that this effect is statistically significant. The p-value of 0.014 is below the common significance level of 0.05, further confirming the statistical significance of the relationship. Therefore, this study rejects the null hypothesis three and concludes that firm profitability has a significant positive impact on CSR.

Regarding, the fourth hypothesis, the coefficient of 0.008 suggests that for each unit increase in firm growth, CSR increases by 0.008 units. However, the t-value of 1.01 is below the conventional threshold of 2.0, indicating that this effect is not statistically significant. The p-value of 0.317 is significantly higher than the common significance level of 0.05, reinforcing that the relationship between firm growth and CSR is not statistically significant. Therefore, this study fails to reject the null hypothesis four and concludes that firm growth does not have a significant impact on CSR.

Discussion of Major Findings

From the regression analysis result, the study fails to reject the null hypothesis one which states that firm size has no significant effect on CSR as the results demonstrate an insignificant effect of firm size on CSR. The result contrasts with several studies that suggest a positive correlation between firm size and CSR activities. For instance, Maqbool and Zameer (2018) found that larger firms in Indian banks tend to invest more in CSR due to their financial strength and market presence. Similarly, Khan et al. (2019) and Hameed et al. (2018) reported that larger firms in Pakistan and other emerging markets are more likely to engage in CSR because of their higher visibility and accountability to stakeholders. However, the mixed findings from Murekefu and Ouma (2020) in Kenya and El-Kassar and Singh (2019) suggest that the relationship between firm size and CSR is not always straightforward and can vary depending on industry-specific factors and the genuine intent behind CSR activities.

The findings of a positive effect of firm age leads to rejection of hypothesis two, which states that firm age has an insignificant effect on CSR. The result aligns with the general understanding that older firms tend to have more developed CSR practices due to their accumulated experience and long-term stakeholder relationships. Khan et al. (2019) and Javed et al. (2021), who found that older firms are more likely to have established CSR practices and adopt CSR strategies as part of their efforts to ensure long-term sustainability. However, Yadav and Pathak (2020) and Hossain et al. (2020) highlighted that while older firms often have more resources for CSR, their actual CSR activities can be influenced by the firm's historical focus and managerial attitudes toward CSR, suggesting that the relationship is not always linear.

The findings of a significant positive effect of firm profitability on CSR leads to rejection of hypothesis three. The finding is consistent with the broader literature, which indicates that more profitable firms have greater financial flexibility to invest in CSR activities. Ali et al. (2019) demonstrated that profitable firms in Pakistan are more likely to invest in CSR, as higher financial returns enable them to allocate resources toward social and environmental initiatives. Maqbool and Zameer (2018) also found that Indian banks with higher profitability levels are more likely to engage in CSR. El-Kassar and Singh (2019) noted that firms with higher profitability are better positioned to pursue CSR as a strategic investment, enhancing their market reputation and long-term success. However, the nuanced findings from Wang and Jusoh (2020) and Kumar et al. (2021) indicate that profitability does not always equate to better CSR performance, as some firms might engage in CSR activities for public relations rather than achieving genuine social impact.

Conversely, the study fails to reject hypothesis four, which states that firm growth has no significant effect on CSR. The result indicates no significant relationship with CSR.

This lack of significance suggests that growth rates, whether positive or negative, do not necessarily influence a firm's CSR activities. This finding contrasts with several studies that have found a positive relationship between firm growth and CSR activities. Khan et al. (2019) reported that as firms expand, they often increase their CSR initiatives to build a positive public image and manage stakeholder expectations. El-Kassar and Singh (2019) and Javed et al. (2021) similarly observed that growing firms are more likely to invest in CSR as part of their strategy to solidify their market position and foster sustainable development. However, Murekefu and Ouma (2020) and Teng et al. (2021) pointed out that the relationship between growth and CSR is complex and can be influenced by industry-specific conditions and strategic priorities, with some rapidly growing firms potentially neglecting CSR commitments in favor of expansion.

5. Conclusions and Recommendations

This study investigates the determinants of corporate social responsibility (CSR) among listed oil and gas firms in Nigeria, focusing on firm size, firm age, firm profitability, and firm growth as independent variables. The analysis reveals that firm size does not significantly impact CSR, a result that contrasts with much of the existing literature. Previous studies have suggested that larger firms tend to invest more in CSR due to their financial capacity and greater stakeholder scrutiny. However, this study's results align with findings that indicate the relationship between firm size and CSR is complex and influenced by various contextual factors, including industry-specific conditions and the genuine intent behind CSR initiatives. In contrast, firm age is found to have a significant positive impact on CSR. This supports the notion that older firms, with their established presence and accumulated resources, are more likely to invest in CSR activities. This finding is consistent with the views that older firms tend to have more developed and institutionalized CSR practices. However, it is important to consider that the relationship between firm age and CSR is not always straightforward and can be influenced by the firm's historical focus and managerial attitudes toward CSR. Firm profitability also shows a significant positive relationship with CSR, indicating that more profitable firms have greater financial flexibility to engage in CSR activities. This aligns with the findings that suggest higher profitability enables firms to allocate more resources to CSR initiatives. However, it is crucial to remember that profitability alone does not guarantee effective CSR undertakings, as firms might sometimes prioritize short-term financial gains over long-term CSR investments. The analysis of firm growth, however, indicates no significant relationship with CSR. This suggests that growth rates do not necessarily influence a firm's commitment to CSR activities, a finding that contrasts with the positive relationship observed in some studies. The complex nature of the relationship between growth and CSR suggests that industry-specific conditions and strategic priorities play a significant role in determining CSR engagement.

Therefore, it is recommended that:

1) established oil and gas firms should use their accumulated experience and resources to deepen their CSR initiatives. They should focus on developing long-term, impactful CSR projects that address community needs and align with sustainable development goals.
2) profitable firms reinvest a portion of their financial gains into meaningful CSR activities. Firms should establish formal CSR programs that integrate profit-making objectives with social and environmental responsibilities.
3) both large and small firms develop tailored CSR policies based on their unique capabilities and stakeholder expectations rather than focusing only on size as a determinant. Smaller firms, despite having fewer resources, can still engage in meaningful CSR through innovative approaches and partnerships
4) growing firms balance their expansion strategies with robust CSR commitments. Firms should integrate CSR objectives into their growth plans

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Appendix

Population and Sample

Company Name	Year Incorporated	Year listed
Ardova Plc	1964	1978
Capital Oil PLC	1985	2000
Conoil	1970	1989
Eterna PLC	1989	1998
Japaul Gold & Ventures	1994	2005
MRS Oil Nigeria	1969	1978
Oando PLC	1969	1992
Seplat Petroleum	2009	2014
Total Energies	1956	2001