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EXPLORING THE NEW GREEN GOVERNANCE FRAMEWORK ON ENERGY COMPANIES' FINANCIAL PERFORMANCE: A PILOT STUDY

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Abstract:

The COP26 framework focuses on energy transformation and green governance (GG) as its central priorities. This paper critically evaluated the examination of green governance in the context of Nigerian oil and gas companies, exploring its implications on financial performance (FP) measures. Recent years have presented significant hurdles for companies in the energy sector because of the high expense of ecological remediation following spills and the use of conventional systems of operation. The study collected primary data using a well-structured questionnaire. The researchers employed a systematic approach to select fifteen (15) oil and gas companies for inquiry, utilizing a rigorous random sampling method. Subsequently, three executives from the management, accounting, and auditing departments participated based on predetermined criteria. Utilizing direct linear regression analysis, the study explored the relationship between GG and FP. "The regression analysis showed a coefficient for green governance (GG) of 0.391 with p = 0.004."), signifying a statistically significant correlation. The correlation coefficient (R = 0.413) suggests a substantive association between GG and FP, with 17% of FP variance explained by GG (R2 = 0.170). Hypothesis testing via the F-test demonstrates a positive, significant relationship ($F = 9.236$, $p < 0.001$) between GG and FP, this suggests that there is a strong and meaningful correlation between GG and FP. The findings of this research can provide significant direction for policymakers in developing relevant legislation, at the same time, industry practitioners can leverage these findings to optimize their operational strategies and augment their organizations' financial performance.

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Keywords:

Green Governance; Energy Companies; Financial Performance; Pilot Study; Exploration

Introduction

The climate threat posed by anthropogenic greenhouse gas emissions has become severe in the modern era. Xi-Liu and Qing-Xian (2018) reported in their study that the worldwide annual greenhouse gas emission span from 54.33-75.50 gigatons of carbon dioxide equivalent emissions in which natural emissions are estimated at 18.13-39.30 gigatons of carbon dioxide, equal to roughly 29.07 gigatons of carbon dioxide equivalent, as the most likely emission value. Moreover, the global carbon project presented increased anthropogenic greenhouse emissions from 22 to 36.2 gigatons of carbon dioxide equivalent in 1990 and 2016, respectively (Xi-Liu & Qing-Xian, 2018). The gradual increment in this emission drives the global green governance issue to become a crucial research area for urgent action in combating global warming and the resulting environmental impact (i.e., Sustainable Development Goals 13). However, green governance has been recognized as a multidimensional scope of sustainable development that demands participatory and strategic methods for effectively utilizing natural resources (Dieng & Pesqueux, 2017), primarily coordinating the relationship between humans and nature. Thus, they facilitate the concurrent equilibrium of societal, economic, and environmental factors. This new understanding should help to improve predictions of the impact of green governance in achieving the sustainable development goals "SDG13".

The worldwide topic of green governance has received substantial attention in recent times due to the serious environmental issues caused by human behavior (W. A. Li et al., 2018; Usman et al., 2024). Businesses globally are paying more attention to sustainability issues to promote long-term environmental, social, and economic benefits. Companies are motivated by the increasing social and economic developments to include green management principles in the firm's business models to address sustainability issues (Ren et al., 2018; Usman et al., 2023). Businesses all over the globe are adopting green strategies to reduce their detrimental environmental consequences and improve their financial performance. According to Graham and McAdam (2016), corporate performance exhibited improvement as investments in environmentally conscious initiatives were progressively allocated towards solutions for mitigating pollution. An organization will be motivated to adopt green initiatives by the idea of green governance. With this, the study asserts that the subject of green governance is experiencing growth, garnering scholarly interest at an escalating pace, and gradually shaping the way governments create policies to accomplish SDG13.

Problem statement

Recently, environmental challenges and issues have been recognized as a global concern (Alam et al., 2019; Lucchetti et al., 2019). The economic situation of developing countries has undergone a radical change due to more manufacturing and service facilities, which happens due to resource shortages and environmental problems that significantly influence these shifts (Ren et al., 2018; Singh et al., 2022). Concern for the environs and environmental challenges, often found in industrialized countries has increased, particularly among western consumers (Lucchetti et al., 2019). Businesses are at the crux of this problem because they contribute to

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rising global climate change and greenhouse gas emissions (Obeidat et al., 2020). According to current market trends, developing nations increasingly focus on tackling climate change and achieving long-term sustainability (Mocca, 2019). A study by Miroshnychenko et al. (2017) which examined listed companies in China, found that green governance positively affects a firm's performance financially, as measured by return on assets and return on equity. The result found that the connection between green governance and financial performance is more vital for firms with a higher environmental impact.

Comprehending the hypothesis between a firm's environmental policies and practices is a fundamental concern in firm performance and green governance. This issue is essential because firms are under increasing pressure to reduce their environmental impact, and investors and stakeholders are becoming increasingly interested in companies' environmental and financial performance. Over the past ten years, businesses and academics have concentrated on the burgeoning topic of green governance. Although, limited data exists on how green governance might impact a firm's performance (Jan et al., 2021). Failure to implement green governance practices can have negative impacts that can limit organizations' financial success, including low Return on assets, low Return on equity, minimal sales growth, and expensive asset costs (Amare, 2019).

Ogunkan (2022) also researched sustainable environmental management, examining the effectiveness of environmental governance; results show that the ecological governance systems in Nigeria are not sufficient to effectively address the scope of the environmental issues which has negatively impacted the environment and financial performance of the majority of energy companies; as a result, implementing green governance is necessary for companies to achieve financial performance. There is evidence that green governance practices can lead to improved financial performance and reputation. Research has shown a positive connection between green governance implementation and firm performance, but the connection is complex and influenced by various factors. Despite growing pressure on firms to adopt environmentally friendly policies and practices, the connection between a firm's green governance and financial performance is limited. A positive association exists in some studies between green governance and firm performance; others have found no relationship or a more complex relationship influenced by various moderating factors.

The study offers a chance to incorporate a connected relationship between the green governance structure (green ideas and strategy) and the oil and gas company's financial performance. The outcomes of the investigation will employ a framework for environmentally sustainable governance tailored for Nigerian oil and gas companies to enhance their financial performance effectively.

Research Objectives

This research examines the positive significant relationship between a firm's green governance and financial performance among listed Nigerian oil and gas companies. This study utilized a quantitative approach, employing a questionnaire as the major research instrument. The study employed inferential statistics to ascertain the impact of the independent variable (IV) on the dependent variable (DV). In this situation, the Pearson correlation coefficient and regression analysis were employed in this research to study the relationship between a firm's green governance and financial performance.

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The implementation of effective green governance measures has resulted in substantial decreases in concerns related to global warming. The pursuit of non-green governance initiatives may jeopardize the objective of attaining sustainable firm performance, hence this research is crucial to the realization of the new green governance paradigm. This study presented compelling evidence of the dynamic correlation between green governance and financial success in specifically chosen energy companies in Nigeria for the period from 2019 to 2023. These research findings will be applied in formulating a green governance framework tailored for Nigerian oil and gas companies to optimize financial performance.

The subsequent portions of the study are structured in the following manner: Section 2 conducts a thorough analysis of relevant literature, exploring essential concepts and frameworks in depth. Section 3 of the paper outlines the specific approaches used, which offer a detailed understanding of the techniques used for collecting and analyzing data. Section 4 provides an in-depth examination of the results acquired, presenting interpretations and insights generated from the data. Section 5 contains concluding notes that not only summarize the findings but also propose opportunities for additional research and inquiry in the same field.

Literature Review

Concept of Governance and Firm Performance

The two components that comprise the concept of firm performance are effectiveness and efficiency. The ratio of input to output is termed as efficiency, whereas the rate to which an organization achieves its goals is referred to as effectiveness. Industrially, financial performance can be seen as the overall success of the company's as evaluated growth, sales, and retained earnings. It is critical for a company's expansion and existence (Bag & Omrane, 2022). A company's capacity to make profits is demonstrated by its financial performance periodically. Usually examined annually by contrasting the performance of the companies with previous years and other businesses within the same sector. According to Saputra (2022), The financial performance measurements include, but are not limited to, indicators such as return on capital employed (ROCE), return on equity (ROE), return on assets (ROA), and earnings per share (EPS).

The idea of governance is not new, and there is disagreement among academics over its fundamental components. It can be expressed in various ways (Kusis et al., 2017). In other words, the broad phrase "corporate governance" refers to the practices, procedures, laws, regulations, and institutions that direct corporations and organizations in how they behave, manage, and oversee their activities. When discussing the idea of environmental governance, it is necessary to look at the broad definition of governance. Traditionally, the terms "governance" and "government" have been used interchangeably to refer to the dynamics of power in resource management for national development (Ogunkan, 2022). The way the government used to manage the nation's social and economic resources for development has even been defined as governance (Ogunkan, 2022).

In other words, mobilizing public resources and fostering decision-making for the common good is the shared obligation of the state, the market, and the people. Regardless of the argument, the truth remains that governance significantly impacts environmental activities and consequences. The term "governance" gains precision by including specific corporate, welfare, economic, and ecological modifiers. When used concerning the environment, "governance" is

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commonly employed to refer to the interactions, mechanisms, and normative frameworks between governmental and non-governmental organizations, wherein roles and responsibilities impact how the environment is used, managed, and controlled (Bennett & Satterfield, 2018). Corporate governance emerged from the systematic execution of the governance process.

Corporate governance is an essential standard for establishing a vibrant investment climate that competitive companies require to secure a solid position in effective financial markets. Corporate governance is fundamental for aligning all stakeholders' interests and guiding businesses to achieve sustainability. Businesses often strengthen their structures to promote such behaviors (Jan et al., 2021). Various corporate governance frameworks have been established to enhance the performance of a company. However, the concept of green governance, which aims to improve a firm's financial performance, has not been given much consideration. Nevertheless, community-based and market-based environmental governance initiatives have recently surfaced, along with a parallel growth in developing governance structures in other regulatory domains (Lihua et al., 2020).

Concept Of Green Governance

The growing calls for a paradigm shift in how people view the natural world have given rise to green governance. By presenting a persuasive and comprehensive approach to environmental conservation that incorporates a broader understanding of economics, human rights, and commons-based governance, it paves the way for a fresh range of solutions (Weston & Bollier, 2013). Numerous ways to interpret what "green governance" means exist, some scholars have looked at it from the perspective of "green," characterizing it as using governance procedures to influence businesses' green behaviors (Chen et al., 2020).

Scholars have not agreed on a single definition of "green governance" due to the wide variety of aspects that it encompasses. Jiang et al. (2021) for example, "green governance" refers to business measures that reduce sustainability problems and provide the basis for sustainable development. Environmental, social, and economic sustainability approaches were dubbed "green governance" by W. Li et al. (2018). Similarly, The term "green governance" was developed by Beunen and Patterson (2019) to incorporate the concept of sustainability. According to Bennett and Satterfield (2018), the initiatives taken by an organization to lessen conflict between humans and the natural environment are referred to as "green governance". Escrig-Olmedo et al. (2019) define green governance as a life cycle that aids companies in their transition to sustainable development.

Nevertheless, it could be argued that "green governance" is a catch-all phrase for business practices that integrate concepts from the business environment, business governance, and the connection between society and business which a significant number of stakeholders would benefit. Furthermore, A new idea called "green governance" integrates the idea of sustainability and holds companies responsible for their actions' long-term environmental, social, and economic impacts. (Shah et al., 2022). Therefore, the unplanned, green administration, green supply chain, green management, and green production of a particular subject are frequently the extent of existing green governance practices. This study will investigate whether evaluating the performance of the company using its green governance framework is a smart idea. In this study, the structure of green governance is determined by its dimensions of green ideas and strategy, which is measured by green vision, green mission, organizational green culture, and green values.

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Drivers of Green Governance

Green governance has evolved into a crucial mechanism for realizing the Sustainable Development Goals (SDGs). Existing literature indicates that the investigation of green governance's impact on improving firm performance remains an underexplored research area, necessitating the development of novel frameworks to advance environmentally sustainable practices.

Green governance is a critical driver of company profitability in Nigeria that employs sustainable business practices. The governance institutions in any economy have a direct responsibility for providing guidance on environmental protection techniques that are associated with green governance. For example, the sustainability concepts articulated in COP26 encompass the proactive reduction of environmental and societal effects, promotion of sustainable behaviors, and endorsement of responsible resource utilization across manufacturing processes. Nigerian oil and gas firms are particularly urged by the Nigerian Code of Corporate Governance (NCCG 2021) to create favorable environments for sustained business operations. It presents an all-encompassing viewpoint on the business world and puts proactive, effective plans in place to address opportunities and issues related to environmental, social, and governance (ESG) (Ogbaisi & Ezuem, 2021). Furthermore, the oil and gas industry need to adopt green governance principles to support international sustainability programs. The financial viability of businesses could be severely impacted if these risks are not well managed.

Green Ideas and Strategy

The focus on long-term continuity in terms of CSR that businesses have is completely reflected in green governance initiatives and strategies (Li et al., 2020). Ko et al. (2020) stated that companies can only portray good CSR and achieve long-term SDG when their CSR behaviors exhibit continuity and initiative. The study of Li et al. (2020) produces a green governance structure index and develops an evaluation methodology for the green governance structure based on organizational structure, values, green strategies and ideas. The green governance ideas and strategies (GIS) can be evaluated looking at the following aspects: green vision, green mission, organizational green culture, green performance.

Green Vision

According to Chang et al. (2019), a green vision provides appropriate advice and optimal objectives for employees, allowing them to successfully overcome current challenges and fulfil their work responsibilities. A shared vision can provide a unified strategic direction to facilitate and reveal aligned objectives, knowledge, and aspirations, articulate shared concepts and plans for members' future goals to achieve a competitive advantage (Afsar et al., 2020). By adopting a green vision, management may create future organizational policies that will protect the environment and help the company achieve its sustainable goals.

Green Mission

According to Isensee et al. (2020), a mission statement outlines the objective, culture, vision behavior, and strategy of the organization. The mission identifies the principles that underpin the Company's business model, integrating sustainability into all company activities, respecting the environment and climate, emphasizing employee enhancement, training, and development, and integrating diversity into the business model. Multiple empirical investigations provide evidence of a positive correlation between the mission statement and performance. (Abbas, 2020; Cho et al., 2019). When adopting green governance, Padash and Ghatari (2020) showed

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that the green mission influences resource allocation and the development of sustainable initiatives. Efficiently establishing sustainable goals for an organization and formulating strategies necessitates a concise mission statement (Allen et al., 2018).

Organizational Green Culture

The term "green culture" refers to a comprehensive idea that blends "green" and "culture." (Ermolaeva, 2010). The term "green" refers to measures that promote recycling, eco-friendly cleaning, better health, and efforts to mitigate the effects of climate change. In contrast, the cultural component reflects how members of a society behave, as well as the conventions and values that are connected to their traditions. The concept of organizational culture has been frequently employed in the literature on sustainable business practices (Alam & Islam, 2021). Likewise, the study of Ogiemwonyi and Harun (2020) described environmental axiological and action-oriented approaches as drivers to describe the relative significance of green culture in sustainability topics. OGC may therefore be a useful instrument that helps companies carry out their eco-friendly objectives and achieve green performance (Ma et al., 2021; Wang, 2019).

Many environmental writers argue that to solve environmental issues, companies need to undergo a profound cultural revolution (Porter et al., 2016). A body of literature has attempted to demonstrate how a greener corporate culture may be advantageous for both the economy and the environment. For instance, a company may develop environmental competencies that rivals would find challenging to duplicate (Zameer et al., 2020). Because green performance provides crucial information on the effects on the environment, regulatory compliance, and organizational systems, all of which show the effectiveness and efficiency of a firm's environmental activity, the OGC affects a company's financial performance (Obeidat et al., 2020; Wang, 2019). Green performance refers to the assessment of a company's environmental interactions (Rehman et al., 2021). Prior research has shown that the presence of an organizational green culture (OGC) can influence the mindset of organizations and that the members of an organization play a crucial part in this transformation.

Firms Financial Performance

The objective of firm performance is nearly universal among all stakeholders associated with the firm (Khan & Johl, 2019). Assessing a company's performance is crucial since it gives information about the aims and objectives of the firm and how successfully they were attained within the fiscal year. Three primary indicators are used in this study to assess firm financial performance: sales growth (SG), return on capital employed (ROCE), and return on equity (ROE). An extensive literature review has been conducted on the variables in the study. Obara and Nangih (2017) investigated how accounting practices affected the performance of Nigerian oil and gas companies financially, especially those engaged in the upstream industry. The specific objectives were to ascertain the effect of accounting practices on the ROCE and ROA of the Nigeria oil and gas firms.

The empirical examination was guided by the study's objectives, and the results showed a strong relationship between accounting standards and oil and gas companies' financial performance, particularly in terms of Return on Capital Employed (ROCE). A Study carried out by Khan and Johl (2019) identified however, by implementing a complete green innovation, firms can achieve efficient financial performance and lower manufacturing costs. Furthermore, according to Fathihani and Saputra (2022), businesses started to use sustainable practices, which are good for their bottom line and long-term survival, as well as a positive

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impact on their financial performance. Moreover, the study carried out by Nwaiwu and Oluka (2018) focused on the financial performance and disclosure of the environmental cost of Nigerian oil and gas. The article conducts an experimental investigation of the effects of disclosure of the environmental cost and financial performance indicators on listed Nigerian oil and gas firms. The CBN's yearly financial report and economic review were used to collect time series data. Using SPSS version 22, the Pearson product-moment coefficient of correlation, and the multiple linear regression analysis were run. The econometric results examined adequate environmental cost disclosure and showed that Company environmental policies influenced financial performance assessments in a positive and significant way.

Authors	Purpose	Green governance dimensions	Financial performance dimensions	Methods
Shah et al. (2022)	Developing a Green Governance Framework for the Performance Enhancement of the Oil and Gas Industry	Enterprise risk management, sustainability indicators, and green board committees	Shareholder value-added	Content analysis
Li et al. (2020)	Green governance structure, ownership characteristics, and corporate financing constraints	Green ideas, values, strategy, and organization arrangement	Company growth, Return on assets, Asset-liability ratio. Shareholding ratio	Content analysis
Choi et al, (2023)	Current Advances in Green Governance and CO_2 Emissions towards Sustainable Development.	Energy and Environmental E&E policies, business strategies	Sales volume, return on assets, profit margin, Return on investment, sales performance, cash flow.	Empirical study
Rodríguez-González et al. (2022)	Does circular economy affect financial performance?		sustainable finance financing and corporate financial performance. ROA; Tobin's Q	Empirical study

International Journal of Entrepreneurship and Management Practices
EISSN : 2600-8750
Volume 7 Issue 25 (June 2024) PP. 443-466
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Fathihani et al, (2022)	A Review of Sustainable Finance and Financial Performance.		Qualitative approach.
Pamungkas et al.. (2023).	Corporate Governance and Financial Performance on Firm Value	ROA; Net Profit After Tax/Total Assets	Secondary data

Table.1 Green Governance, Financial Performance Dimensions

Over time, numerous researchers have developed various tools or dimensions for assessing green governance as shown in table 1. According to Li et al. (2020); Shah et al. (2022); Pamungkas et al. (2023) studies analyzed the circumstances in which green governance strategies result in enhanced financial performance to determine its dimensions. Their choices were informed by a comprehensive review of the literature, focusing on items that directly impact green practices and contribute to increased financial returns for firms. Conversely, Li et al. (2020) measured green governance using green ideas and strategies, and the organizational green arrangement. It involved examining green mission, green vision, green values, culture, and development strategy as the process of investigating green governance concepts and techniques. Their results showed that the degree of equity balance and institutional investor shareholding percentage both exacerbated the detrimental effects of the green governance structure on financing restrictions.

This paper follows the process of construct development to ensure the reliability of the items, as documented in the work of Li et al. (2020). They follow the generally accepted and often used principles of green governance, using certain protocols and methods to guarantee the instrument's dependability, as described below.

(a) The scope of each construct was initially delineated through a thorough examination of the literature.

(b) The Delphi Method was utilized to apply weighting to the green governance structure's indicators. First, ratings were assigned to the weights of the first- and second-level indicators by experts with experience in corporate governance. The scoring weights were examined using predetermined assessment criteria, and a validity test procedure was then employed to validate them, and subsequently, the arithmetic mean value of the scoring weights assigned by the experts was computed.

(c) They evaluated specific indicators for each sampled energy company by scrutinizing their official websites and annual reports, adhering to stringent scoring guidelines established through thorough discussions with experienced specialists. The green governance structure index was then computed based on the sum of the indicator scores and their respective weights.

Similarly, Shah et al. (2022) measured green governance in terms of sustainability indicators, green board committees, and enterprise risk management. Consistent with this approach, for a

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DOI: 10.35631/IJEMP.725035

conceptual delineation of the construct and clarification of the inclusions and exclusions within the domain of green governance, the present study incorporates the following parameters as the dimensions of green governance.

(a) The GG constructs which encompass the green ideas and strategies, and the organizational green arrangement (green mission, green vision, green values, green culture and development strategy) formulated by Li et al. (2020) serve as the independent variables, as they directly encapsulate the operational definition of the current study while establishing a dimension for the domain. Hence, to guarantee the comprehensive validation of the research instruments, this study adopted the GG constructs developed by Li et al. (2020), and conducted a comprehensive review involving three academicians, comprising different distinct institutions to ensure proper scrutiny, the validation process includes two government policy experts and two industry specialists. Furthermore, certain things were reconsidered and adapted, while others were removed, in order to better correspond with the objectives of each design. Following that, three professionals examined the survey instrument individually to provide input on the questions' clarity.

(b) In this study, financial performance is the dependent variable, and its evaluation is done using metrics like Return on Equity (ROE), Return on Assets (ROA), and Return on Capital Employed (ROCE). The selection of these indicators are based on the measurement developed by Rodríguez-González et al. (2022). Composite Reliability Index (CRI) and Cronbach's alpha were used to verify the validity and reliability of their scales. The factorial loads were shown to be significant at 0.891, above the minimum threshold level of 0.7 that was advised. Furthermore, according to Hair et al. (2019), Cronbach's alphas were higher than 0.8, indicating strong reliability. Consequently, the study's suggested conceptual framework is displayed in the next section.

Hypothesis Of The Study

Despite growing pressure on firms to adopt environmentally friendly policies and practices, the connection between a firm's green governance and its financial and non-financial performance is not well understood. A positive association is found in some studies between green governance and firm performance, others have found no relationship, or a more complex relationship influenced by various moderating factors (Ghosh, 2019; Younis & Sundarakani, 2020). Comprehending the relationship between a firm's environmental policies and practices is a basic concern in the domain of firm performance and green governance. This is an important issue because firms are under increasing pressure to reduce their environmental impact (Singh et al., 2022), and investors and stakeholders are becoming increasingly interested in the financial performance of companies. Over the past ten years, academics and business have concentrated on the burgeoning topic of green governance. However, there is little data on how green governance might impact a firm's overall performances (Jan et al., 2021). Failure to implement green governance can have negative impacts which can limit the financial success of organizations, including low Return on assets, minimal sales growth, low Return on equity, and expensive asset costs (Amare, 2019). There is evidence that green governance practices can lead to improved financial performance, as well as improved reputation (Amare, 2019). Research has shown that there is a positive association between green governance implementation and firm performance (Ghosh, 2019; Younis & Sundarakani, 2020), but the connection is complex and influenced by a variety of factors. This inspired our study to offer a chance to incorporate a connected relationship between the green ideas and strategy, green

International Journal of Entrepreneurship and Management Practices
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board committee, green board structure and the firm's financial performance. thus, our study hypothesizes that:
H1: There is a significant relationship between green governance (GIS) on firms' financial performance.

H0: There is no significant relationship between green governance (GIS) on firms' financial performance.

Research Model

The dependent variables (DV) as well as the independent variables (IV) elucidate the nature of their relationship (McGaghie et al., 2001). The proposed study model, which demonstrates the positive correlation between financial performance (the dependent variable) and green governance (the independent variable), is depicted in Figure 1 below. The dependent variable is measured by Return on assets (ROA), which is the effective use of the company's resources is correlated with increased ROA and vice versa. Return on equity (ROE), Indicates that a company with a high return on equity is capable of generating funds internally, either by retaining earnings or through other means (Enekwe et al., 2022; Saidat et al., 2018). ROE denotes improved business financial performance and a higher rate of Return for shareholders' capital, and lastly Return on capital employed (ROCE) which is divided by a company's lower current liabilities as a percentage of its total assets, as reported in Bag and Omrane (2022); Saputra (2022), while the IV (green governance) green governance is determined by the main construct of green ideas and strategy, the sub-dimensions: green vision, mission, values, and green organizational culture (Li et al., 2020).

International Journal of Entrepreneurship and Management Practices
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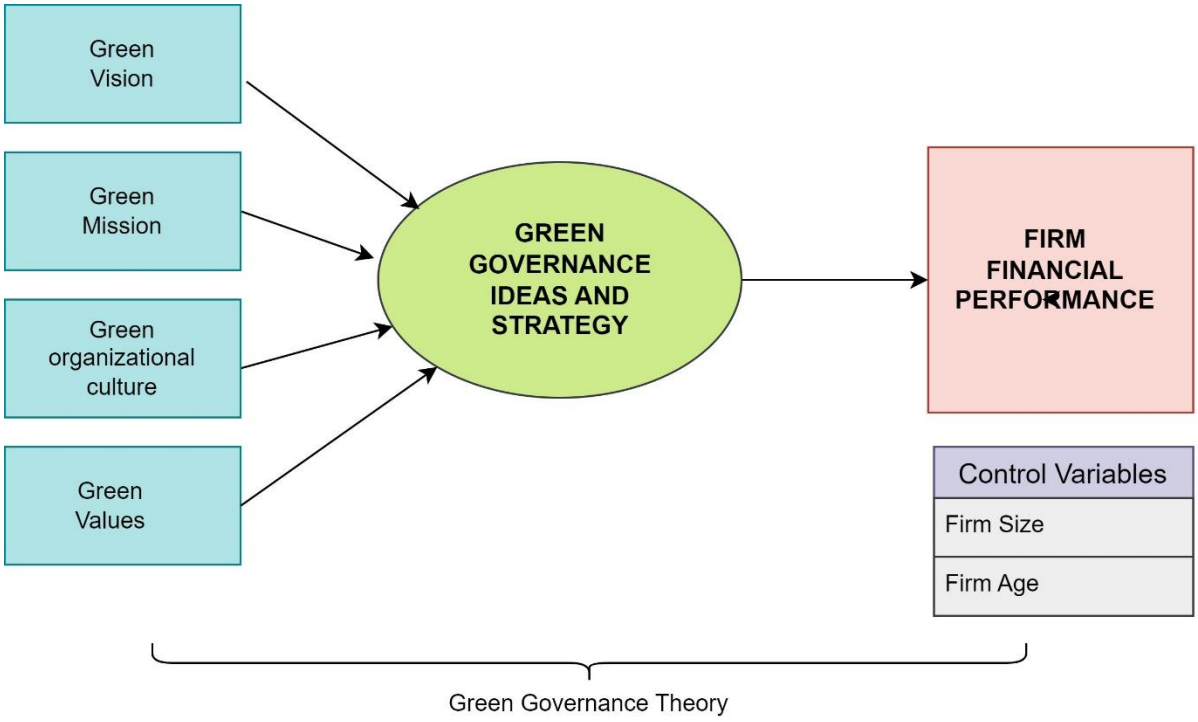

Figure 1 Research Model

Moreover, the control variables (firm age, firm size) are employed in the study to assess the profitability of a firm influenced by its size and age, which enhances performance and aids in defining an entity's growth, long-term viability, and development (Etim et al., 2020; Rahman & Yilun, 2021; Waluyo, 2017). Finally, it demonstrates how the green governance paradigm was applied in earlier research (Debbarma & Choi, 2022; W. Li et al., 2018; Park & Kim, 2019; Shah et al., 2022). The following section elucidates the rationale for employing green governance theory in this study.

Green Governance Theory

The foundation of the theory of green governance is to define the boundaries between man and nature and create a universally accepted norm through the construction of a top-level system. Green Governance theory posits that democratic, participatory, and transparent decision-making processes in environmental management are crucial to ensure that both environmental and economic goals are met. This theory suggests that involving stakeholders, such as employees, customers, and the community, in environmental decision-making can help firms improve their performance. Research has shown that firms that adopt green governance practices (green ideas and strategy) tend to have better financial performance. A study by Park and Kim (2019), found that firms with high levels of stakeholder engagement and participation in environmental decision-making had higher levels of financial performance. This is indicating that the GG and firms' financial performance have a functional link (W. Li et al., 2018; Ogunkan, 2022; Saputra, 2022). However still, there is a dearth of research on the connection between green governance and financial performance. This study utilizes the framework of green governance, encompassing elements such as green ideas and strategies, which are assessed through an organization's green vision, mission, culture, values, and

International Journal of Entrepreneurship and Management Practices
IJEMP
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Volume 7 Issue 25 (June 2024) PP. 443-466
DOI: 10.35631/IJEMP.725035

structural arrangements. The aim is to determine the factors that enable Nigerian oil and gas companies to achieve sustainable financial performance.

Methodology

Quantitative (deductive) approach method was employed in the present study to show the procedures developed by the researchers to validate the developed hypothesis, thereby observing the reliability consistencies of the independent (green governance) and the dependent variable (firms' financial performance) via a sample questionnaire distributed across the selected Registered Nigerian oil and gas companies. The analysis of the data was conducted using Scientific Package for the Social Science (SPSS) software version 26, due to insufficient amount of generated data to determine the reliability of the variables with one another as suggested by previous studies for developing an index or adapting a model for a small data by Johanson and Brooks (2010). This is assumed to give a thorough and systematic analysis of the current study as research in this domain is still in its infancy.

Scope Of The Study

The scope of the current study involves majorly registered Nigerian oil and gas companies. Nigeria is an oil-dependent country since a significant amount of its income comes from this industry, the oil and gas industry involved in the upstream, mid-stream and downstream petroleum activities; the sector was contributing more than 60% of all government revenue. the oil sector has made a sizable contribution to Nigeria's GDP over the years, topping 20% since the early 1980s and in certain years accounting for more than one-third of its GDP. The study's selection of these industries was motivated by the substantial negative effects on the nation's economy resulting from pollution and environmental damage caused by problems in the oil industry (Obayelu, 2019). Nigeria's economy is greatly affected due to the negligence of the industry to make the right financial decisions and abide by appropriate environmental rules to boost the firm's financial performance. (Bank, 2018; Erhinyoja & Marcella, 2019). Most of the literature found focused mainly on other industries in Nigeria without focusing much attention on the oil and gas sector with a solution to mitigate this problem, this study will provide a novelty.

Types Of Data Used.

Primary and secondary data are the two main kinds of data used in this study. In the current study, both data types are used in the following ways:

i. The collection of primary data involves first-hand experience. Because they have never been released before, these data are impartial, trustworthy, and genuine. Thus, compared to secondary data, the validity of such data is higher (Saunders et al., 2019). Thus, gathering information on green governance practices (green ideas and strategy, green board committees, and green board structure) across all Nigerian oil and gas companies constitutes the main data collection for this study.

ii. Conversely, secondary data encompasses the collection of information from sources other than those that have been first published (Taherdoost, 2019). Examples of these sources include annual reports, literature reviews, and several more.

International Journal of Entrepreneurship and Management Practices
IJEMP
EISSN : 2600-8750
Volume 7 Issue 25 (June 2024) PP. 443-466
DOI: 10.35631/IJEMP.725035

Sampling Methods

Sampling Elements

This is usually the subject matter of a particular study's information. It is commonly referred to as a respondent. The current study's sampling component includes operation managers, accountants, and auditors from Registered Nigerian oil and gas companies to determine the reliability or internal consistency of indices used for green governance, and green audit with firms' financial and non-financial performance.

Sampling Population

The sampling population for this study involves a multistage sampling procedure because of the nature of this study, in which three (3) employees from the top management in the Nigerian oil and gas companies were selected, making a total of 45 respondents in all, including operation managers, accountants, and auditors, were chosen because their work directly affects the daily activities of oil and gas companies.

Data Collection

As previous researchers have shown, there are various kinds of data collection methods. The following are applied for the current study and are explained by (Morgan & Harmon, 2001) as various commonly used types of data collection procedures:

(a) Interview and Questionnaire: An interview can provide a wealth of detailed information on the activities, insights, and behavior of the interviewee, on the other hand, to identify a trend among a sizable population, the phrase "questionnaire" is typically employed (Harris & Brown, 2019). Typically, qualitative research uses interview techniques, whereas quantitative studies typically use questionnaires. Nevertheless, the two can also be used in a mixed study. The survey approach is typically used to collect data when it comes to questionnaires. (Lutabingwa & Auriacombe, 2007; Saunders et al., 2019; Taherdoost, 2019).

(b) Reports: Reports include sustainability reports, administrative records, statistical records, and a company's yearly reports, that contain data that was first gathered for a different purpose and used in another investigation. Since they have previously been gathered for a specific purpose and are being kept for use in a future study project, these kinds of data are also referred to as historic data (Hox & Boeije, 2005). It is used for collecting relevant data that is required for specific research, like the one being conducted in this study.

Using questionnaire methodologies for primary data, the current study aims to determine the financial performance of oil and gas companies in Nigeria as the dependent variable and the pattern of green governance as the independent variable. As a result, primary data collection methods (questionnaires) are used in the process. As will be discussed in the next section, the questionnaire was the main tool used for data gathering. See appendix (i) for the questionnaire.

Data Analytical Technique

To evaluate each of the conceptual framework's hypotheses for the current study, The Statistical Package for Social Sciences (SPSS) version 26 is used to apply the basic linear regression analysis technique. Since there is a direct relationship between the variables in this study, as

International Journal of Entrepreneurship and Management Practices
IJEMP
EISSN : 2600-8750
Volume 7 Issue 25 (June 2024) PP. 443-466
DOI: 10.35631/IJEMP.725035
the current study comprises a direct relationship between variables, The study utilizes basic linear regression analysis to determine the positive and significant association between green governance (GG) and financial performance (FP). The linear regression is expressed as:
$Y1 = \beta0 + \beta1X1 + Ɛ$

Were.
Y1 = FP (dependent/response variable)
X1 = GG (independent/regressor variable)
β0 = Intercept
β1 = Coefficient
Ɛ = error term or random disturbance term assumed to be normally distributed with mean zero.

Results And Discussions

An overview of the correlation coefficient is provided below in Table 3.1. The version of the adjusted coefficient (adjusted R2), and R, its square (R2). According to the regression model, the correlation value (R = 0.413) reveals a strong relationship between green governance (GG) and financial performance (FP). Just 17% of the predictor variable (GG) can explain the variation in financial performance, according to the R2 = 0.170. Nevertheless, even if additional factors do not further explain population variability, R2 still tends to rise with their addition to the model. An adjustment downward is necessary to account for random increases in R2, with further modifications for more extensive sets of explanatory variables as reported in Everitt and Dunn (2001); Oyelakin and Johl (2022). Based on the revised estimate derived from the adjusted R2, green governance (GG) accounts for 15.2% of the variation in financial performance.

The variance between a company's mean financial performance and its financial performance under green governance is measured by the error term. The mean deviation in a regression model is zero because both negative and positive variations negate each other completely. However, the absolute discrepancies between the actual and projected FP increase with error variability. In this instance, the model synopsis under the "Std. Error of the Estimate" column shown in Table 2 below, the standard deviation of the error term is estimated to be 0.88975, which is quite modest when compared to the observed FP.

The ANOVA Table, which provides the F-test for doing hypothesis testing, is shown in Table 3. The hypothesis under investigation in this study posits a statistically significant positive relationship between GG and FP. Here, given that this alternative hypothesis is amply supported ($F = 9.236$, $p > 0.001$), we can infer that GG and FP have a statistically significant positive relationship.

Table 3 presents the regression outcomes detailing the association between green governance (GG) and financial performance (FP). The table shows a positive relationship between GG and FP, indicated by a coefficient of 0.391. The result aligns with Shah et al. (2022) framework for implementing green governance in the oil and gas sectors, they formulate a green governance framework and conceptualize its integration with firms' financial performance, to protect the interests of shareholders by increasing financial returns and encouraging sustainability for all parties involved. Similarly, Ruan et al. (2021) analyze ESG rating data from 2015 to 2019 for China's Shanghai and Shenzhen A-share listed companies, revealing a significant negative

International Journal of Entrepreneurship and Management Practices
IJEMP
EISSN : 2600-8750
Volume 7 Issue 25 (June 2024) PP. 443-466
DOI: 10.35631/IJEMP.725035

impact of corporate ESG activities on firm performance. According to a thorough investigation carried out by Li et al. (2020), the result identified the relationship between green governance structure and enterprises' financial restrictions may be facilitated by regional economic development and the legal environment. Additional studies show that the green governance variable enhances organizational performance, which makes it especially appropriate for sustainable growth.

Based on the T-ratio (3.039) or P-value (0.004) of GG reveals is a significant relationship exist between GG and FP as shown in Table 4. As a result, this study showed that GG and FP had a positive and substantial relationship.

Table 2. Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimation
1	0.413[a]	0.170	0.152	0.88975

a. Predictors: (Constant), GIS

Table 2 Regression Table

Table 3. ANOVA[a]

Model	Sum of square	df	Mean Square	F	Sig.
Regression	7.312	1	7.312	9.236	0.004[b]
Residual	35.624	45	0.792		
Total	42.936	46			

a. Dependent Variable: FP
b. Predicators: (Constant), GIS

Validity Result

This study passed through rigorous scale development and validation processes. The items were adapted from various past literatures on green governance and firm performance and channeled to the need of this study. However, expert input was needed because it's crucial for evaluating the questionnaire used in green governance and firm performance. Their judgment and feedback will inform potential additions, modifications, or exclusions. The current study seeks feedback on the validity of items from two academicians, two policy makers, and two industry experts, representing diverse backgrounds in universities, government institutions, and industries. As such, they all participated, providing feedback that led to appropriate corrections for item validation (Drost, 2011).

Reliability Result

This shows how consistently a study's measurements are made. Winther and Klotz (2013) indicated that the measurement provides precise confirmation of the results, achieved by systematically eliminating any inherent biases in the study. Thus, it guarantees the

International Journal of Entrepreneurship and Management Practices
IJEMP
EISSN : 2600-8750
Volume 7 Issue 25 (June 2024) PP. 443-466
DOI: 10.35631/IJEMP.725035

dependability and uniformity of the recorded score across the utilized instruments. This study uses Cronbach's Coefficient Alpha, which was first presented by Cronbach in 1951, to evaluate internal consistency and dependability. This selection is based on the fact that reliability assessments are frequently used by researchers, which makes it a popular tool for determining the caliber of the research instrument used in this specific study type (McNeish, 2018). To this end, the reliability score in Table 5 reveals (Cronbach's Alpha of .913) This indicates that the variables are more reliable.

Similarly, table 5 below presents the item reliability, which is at a satisfactory level above the >.7 criterion. Reliability coefficient values, according to Winther and Klotz (2013), range from 0 to 1. He concluded that greater coefficients correspond to higher reliability levels (Heale & Twycross, 2015). Additionally, although a dependability of 0.5 indicates a strong result, it is crucial to remember that an alpha value of 0.7 or greater is considered appropriate. This indicates that the

Table 4. Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.072	0.501		4.138	0.000
GIS	0.391	0.129	0.413	3.039	0.004

a. Dependent Variable: FP

Table 4. Relationship Between Green Governance And Financial Performance

Table 5. Total reliability statistics of GIS

Cronbach's Alpha	N of items
0.913	14

Code	Items	Factor loading	Cronbach's Alpha
GIS1	Green ideas	0.780	0.913
GIS2	Company objective	0.879	
GIS3	Env. committees	0.828	
GIS4	Top managers	0.859	
GIS5	Env. protection	0.773	

International Journal of Entrepreneurship and Management Practices
IJEMP
EISSN : 2600-8750
Volume 7 Issue 25 (June 2024) PP. 443-466
DOI: 10.35631/IJEMP.725035

GIS6	Company strategy	0.883	
GIS7	Company rules	0.772	
FP1	Economic benefit	0.657	0.926
FP2	Profit margin	0.895	
FP3	Return on assets	0.840	
FP4	Return on invest.	0.801	
FP5	Sales volume	0.772	
FP6	Sales performance	0.904	
FP7	Cash flow	0.872	

scale's items measure the same construct as a whole and exhibit a sufficient degree of internal consistency (Saunders et al., 2019). On the other hand, a correlation coefficient of 0.3 is the lower bound. Consequently, any number below this threshold shows that the single item does not demonstrate a substantial association with the total scale, as noted by (Heale & Twycross, 2015; McNeish, 2018). This criterion indicates that the measuring variable's dependability as well as the reliability of its component items are suitable for the present research because they all above the 0.7 level.

The outcome of the results reveals a high internal consistency, it will enable policymakers, practitioners, and managers in the operations matters of firms and sustainability issues to achieve greater performance and sustainability through efficient provision of green practices, to reduce the use of natural resources, protect the environments, reduce the greenhouse gas emissions and combat climate change. It will also contribute towards the sustainability of the global financial economic performance. More so, this study will address the sustainability issues related to firms financial and non-financial performances.

Conclusion And Implications

In conclusion, the regression analysis shows a statistically significant and favorable correlation between the firm's financial performance (FP) and green governance (GG). The reliability score in Table 5 reveals (Cronbach's Alpha of .913), which indicates that the variables are more reliable. Similarly, the item reliability, is at a satisfactory level above the >.7 criterion. A favorable correlation between green governance (GG) and firm financial performance (FP) is indicated by a positive coefficient of GG. This outcome stems from varying conditions in the heterogeneous environment in emerging economies where corporate Environmental, Social, and Governance (ESG) initiatives are still in their infancy and where comprehensive frameworks and laws have not materialized, additionally, there is little data on how green governance may impact companies' overall performance. This may represent a novel discovery for this research. It is suggested that in order to promote efficient green governance and improve financial performance, Nigerian oil and gas businesses should give priority to developing their internal green capabilities, particularly those of managers with respect to environmental awareness. This study intends to offer a comprehensive perspective on the financial performance of the organization, which is crucial for shareholders in making

International Journal of Entrepreneurship and Management Practices
IJEMP
EISSN : 2600-8750
Volume 7 Issue 25 (June 2024) PP. 443-466
DOI: 10.35631/IJEMP.725035

decisions. Additionally, the government needs to establish and monitor environmentally sustainable policies for the benefit of future generations.

To maintain long-term green governance practices, inclusive governance rules are essential. The findings support investment in research and development, which promotes the growth of environmentally friendly technology and innovations as well as the establishment of sustainable infrastructure. To address the financial demands of developing countries, it is crucial to prioritize green investment and funding. Governments have the potential to enhance their green governance frameworks by bolstering regulations and enforcement protocols, improving accountability and transparency measures, and stakeholders' engagement in decision-making procedures on how to improve financial performance and achieve environmental sustainability.

Limitation And Future Recommendation

This study's limitations include a small sample size (n = 15) for the pilot study, impeding the generalization of results. Secondly, this study did not cover other aspects of green governance such as green growth, green board structures, green board committees. Thirdly, the study ignored non-financial performance criteria in favor of using ratios to evaluate the financial performance of the companies. To gauge the success of businesses, future studies should use non-financial performance metrics. Lastly, future research should consider employing additional regression analyses beyond SPSS to enhance result generalization., thereby empirically analyses and confirm the proposed conceptual framework by testing more hypothesis. Lastly, researchers should consider the future research model on green governance antecedents (GPM, GIQ, GP and GE) towards Environmental Performance. This future research model's primary contribution is the creation of an ecological footprint framework that emphasizes green policies, green planning and management, green institutional quality, green economics, and green investment to help businesses succeed in environmental concerns.

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