ISSN: 2230-9926

Available online at http://www.journalijdr.com

IJDR

International Journal of Development Research
Vol. 14, Issue, 11, pp. 66992-66998, November, 2024
https://doi.org/10.37118/ijdr.28914.11.2024

RESEARCH ARTICLE OPEN ACCESS

ANALYZING COMPETITIVE MARKETING STRATEGIES AND RESILIENCE IN OIL AND GAS SECTOR: A FRESH EVIDENCE FROM EQUATORIAL GUINEA

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ARTICLE INFO

Article History:
Received 18th August, 2024
Received in revised form
29th September, 2024
Accepted 17th October, 2024
Published online 30th November, 2024

Key Words:

Sustainability Strategies, Innovation, Diversification, Resilience, Oil and Gascompany, Equatorial Guinea.

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ABSTRACT

This study investigates the complex interplay among Sustainability Strategies (SUST), Innovation Strategies (INST), Diversification Strategy (DIST), and the Resilience of Oil and Gas Companies (ROGC). It specifically examines how SUST, INST, and DIST directly impact ROGC, providing valuable insights into the resilience-enhancing potential of these strategies within the oil and gas sector. A stratified sampling method was employed to gather 330 responses from oil and gas companies across Equatorial Guinea, and the data was analyzed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique. The findings reveal that SUST, INST, and DIST have a significant positive effect on ROGC, underscoring the crucial role of these strategies in fostering resilience. These insights contribute meaningfully to the ongoing discourse on ROGC, particularly regarding how resilience can be built and sustained through SUST, INST, and DIST within this industry. Furthermore, the research provides practical recommendations, emphasizing the importance of the oil and gas companies in Equatorial Guinea to prioritize a strategic framework that integrates sustainability, innovation, and diversification as core components to enhance resilience. Specifically, they could create a cross-functional task force responsible for implementing these strategies, tracking progress, and adapting to new industry trends and environmental standards. This structured approach will enable companies to better withstand market volatility, comply with evolving regulatory requirements, and maintain competitive advantage through sustainable and innovative practices.

Citation*: *Teodoro Obiang Ndong and Zhang Xiao Juan, 2024. *"Analyzing competitive marketing strategies and resilience in oil and gas sector: A Fresh evidence from Equatorial Guinea". International Journal of Development Research*, 14, (11), 66992-66998.

INTRODUCTION

The oil and gas industry global has faced ongoing volatility in pricing, operations, and competitive business environments (Wood, H. &. 2017). This volatility is further exacerbated during periods of global health pandemics or other uncertainties. Such fluctuations influence not only the financial stability of the industry but also its strategic planning and operational efficiencies. The industry's vulnerability to external shocks and unpredictable market conditions necessitates robust risk management and adaptive strategies to navigate through these challenges effectively. Moreso, in the era of global market liberalization, competition for market share and profitability has become more intense and aggressive than ever before.Importantly, most oil businesses in Equatorial Guinea and around the world have had to review their strategies to adapt to the dynamic and ever-changing oil and gas industry (Teräs, A. G. 2019).In Equatorial Guinea, the oil and gas company has expanded from having only a few players a decade ago to presentlycomprising 35 players (Porter, M. E. 2018).Ideally, as the number of businesses in the oil and gas industry improved, so did the competitiveness for market stocks. To succeed in this environment, companies need to adopt strategies known as competitive strategies.

The objective of competitive marketing strategy is to attain firm resilience and thereby improvecorporate performance (Ferrer, 2016). Furthermore, the drawbacks of depending on oil and gas proceeds to sustain awhole economy have long been known, and strategies for economic divergence have been part of national expansion plans in major hydrocarbon-exporting countries since the early 1970s. However, the fall in oil prices that started in 2013 has given this issue new urgency (Maritz, 2020). This decline served as a stark reminder of the damage that can result from a downturn in the commodity cycle, with non-hydrocarbon sectors suffering the most from decreased revenues. It also raised further questions about the long-term structural impacts of two keyinsurgencies in the energy sector: shale as a new supply source and the inferences of clean energy transitions on demand, including enhancements in fuel effectiveness and the increase of electricity as an alternate to oil in parts of the transport sector (Ludovico, 2021). Also, resilience has been explored across various fields, including psychology, economics, and management. In contemporary management, the term "resilience" carries a certain totemic quality. While not outright worshipped, it is highly praised as a key trait that leaders and managers are expected to foster. In organizational contexts, resilience implies that these "high priests" of resilienceleaders and managerscan transform crisis-induced toxicity and damage into "substantial learning and improved,

rather than damaged performance" (hill, J. 2020). Practically, resilience involves not just withstanding stressors but also learning from them. Through this learning process, the mystique often associated with leadership can be dispelled, revealing a more practical approach to cultivating resilience. For this research, resilience will be defined in the specific context of the business environment, particularly within the oil and gas industry. More so, according to Folke (2006), resilience originates from socio-ecological studies and refers to a system's ability to absorb disruptions and return to a stable state. Barabási (2016) offers a broader definition, stating that "an industry is resilient if it can adapt to internal and external disruptions by adjusting its operations without losing functionality." This view emphasizes resilience as a dynamic quality that requires shifts in a company's core activities. Hokroh, M. (2021) further emphasize a company's ability to anticipate, respond, and proactively learn from challenges. Hollnagel (2009) outlines four key pillars of resilience: responding to current situations, employing flexible monitoring mechanisms to detect critical issues, anticipating future problems, and learning from past experiences.

Accordingly, the oil and gas industry in Equatorial Guinea plays a crucial role in the country's economic development, accounting for over 60% of its GDP, 80% of its fiscal revenue, and 86% of its exports as of 2015 (U.S. EIA, 2017). The country became a member of OPEC in 2017 (OECD. 2020). However, like other industries, it is undergoing significant changes. The oil and gas sector faces increasing opposition from a public concerned about the environmental impact of fossil fuels, growing skepticism from shareholders, and challenges from policymakers who are striving to balance decarbonization goals with ongoing oil and gas demand. Amidst the global energy transition, the future of oil and gas companies in terms of demand, financial stability, and social license is increasingly uncertain. This has been reflected in the country's declining hydrocarbon activities, which fell by 8.9%, contributing to a 7.5% decrease in overall GDP (ADB Group, 2021). To remain resilient and competitive, oil and gas companies must rethink their business models and strategies. This study analyzed whether the current strategies employed by these companies enable them to stay competitive and resilient in the face of the ongoing energy transition.

Thus, the present investigation aims to: (i) Examine the connection among sustainability and the resilience of oil and gas companies in Equatorial Guinea. (ii) Evaluate the like among innovation and the resilience of oil and gas companies in Equatorial Guinea. (iii) Determine the connection between diversification and the resilience of oil and gas companies in Equatorial Guinea. Additionally, to achieve the objectives of the study, the following research questions were proposed: (i) What is the association between sustainability and the resilience of oil and gas companies in Equatorial Guinea? (ii) What is the connection between innovation and the resilience of oil and gas companies in Equatorial Guinea? and lastly, (iii) What is the link between diversification and the resilience of oil and gas companies in Equatorial Guinea? Furthermore, the study offers the following contributions to extant literature; first, the study will help the government of Equatorial Guinea identify the key problems faced by oil and gas companies, providing a basis for developing important policies. These policies will focus on the energy sector, particularly in creating a favorable environment to enhance the competitiveness of oil and gas companies. Second, the study will offer insights into the factors influencing the competitiveness and resilience of the energy sector, helping companies leverage strategies used by counterparts in other oilproducing countries to address challenges in the industry.

Beyond the introduction, the paper is organized as follows: Chapter 2 discusses the literature review, Chapter 3 outlines the research methodology, Chapter 4 presents the results and analysis, and Chapter 5 concludes with the study's implications and limitations.

LITERATURE REVIEW

Sustainability Strategy and Resilience of Oil and Gas Companies: Sustainability strategies (SUTR), such as investing in renewable energy or improving energy efficiency, help oil and gas companies transition to a more diverse energy portfolio. This enhances long-term resilience as they become less dependent on fossil fuels, better positioned to survive regulatory and market changes, and more adaptable to shifts in global energy demand(Wiredu, Yang, Inuwa, *et al*., 2023). Also, a commitment to sustainability boosts the reputation of oil and gas companies, improving relationships with investors, governments, and consumers. It can also lead to better access to capital as sustainability is becoming a key criterion for many investors, thus increasing financial resilience (Edquist *et al*., 2017). However, implementing sustainability strategies often requires significant upfront investments, whether in technology, infrastructure, or new business models. These costs can reduce short-term financial resilience, especially for smaller companies or those already facing economic challenges (Buliga, *et al*., 2016). Similarly, while sustainability strategies may align with future energy trends, they can lead to immediate market risks, particularly in regions or markets where there is still high demand for traditional oil and gas. Straying too quickly from core fossil fuel operations may result in reduced market share, creating short- to medium-term resilience challenges (Maritz, 2020; Wiredu, 2024). Thus, in this present investigation, the study debates that by adopting sustainability strategies, such as reducing carbon emissions and investing in cleaner energy technologies, oil and gas companies align themselves with evolving regulatory standards and growing consumer demand for greener energy. This future-proofing strengthens their resilience by enabling them to remain competitive and compliant in a market increasingly focused on environmental responsibility.

Innovation Strategy and Resilience of Oil and Gas Companies: Innovation strategies (INST), such as adopting advanced technologies (e.g., AI, automation, and data analytics), help oil and gas companies streamline operations, reduce costs, and enhance productivity. This operational efficiency boosts resilience by making the business more competitive, even during volatile market conditions (hill, J. 2020). More so, innovation can drive the development of new products, services, or energy solutions (e.g., carbon capture, hydrogen production, or renewable energy investments). This diversification strengthens resilience by reducing dependency on traditional oil and gas revenue streams, making the company more adaptable to changing energy landscapes(Wiredu *et al*., 2022). Likewise, innovations aimed at reducing environmental impact (e.g., cleaner extraction methods or low-emission technologies) help oil and gas companies meet increasingly stringent ESG requirements. By doing so, they can avoid regulatory penalties, enhance brand reputation, and maintain access to capital markets, contributing to long-term resilience (Thune, T. 2018). Accordingly, innovation strategies, particularly in high-risk areas like new technologies or untested business models, carry the risk of failure. These uncertainties can strain financial resources and weaken resilience if investments don't yield expected returns, especially in a highly competitive and fluctuating industry (Teräs, A. G. 2019). In addition, innovation strategies often require organizational change, including the adoption of new skills, mindsets, and technologies. Resistance from employees or leadership to embrace these changes can slow down implementation, create internal inefficiencies, and undermine the company's overall resilience to external market challenges (Weinberg, & A.S., 2020). Therefore, the present study contends that implementing innovative technologies, such as digital oilfield solutions, AI-driven exploration, and advanced drilling techniques, allows oil and gas companies to operate more efficiently and reduce costs. This increases their competitiveness and adaptability in a changing industry, making them more resilient to market volatility and regulatory challenges.

Diversification Strategy and Resilience of Oil and Gas Companies: Diversifying into renewable energy sources or non-energy sectors allows oil and gas companies to reduce their reliance on fossil fuel revenues. This strengthens resilience by protecting them from price volatility in oil and gas markets and potential declines in demand due to global decarbonization efforts (Okeke 2021). Moreover, a successful diversification strategy opens up alternative sources of

income, such as investments in solar, wind, or green hydrogen production. This creates multiple revenue streams, helping companies withstand economic downturns in the oil and gas sector, ensuring financial stability and growth (Ludovico 2021). Additionally, by spreading their investments across various sectors, oil and gas companies can mitigate risks associated with being overexposed to one market. This diversification increases resilience against regulatory, environmental, or geopolitical shocks that could disproportionately affect traditional oil and gas operations. Nevertheless, Dipak and Heather (2020) expanding into new industries requires substantial financial and managerial resources. If not managed properly, this can dilute the company's focus on its core oil and gas business, leading to inefficiencies and reducing its competitive edge in its primary sector, which may harm its short-term resilience. Similarly, entering new sectors, especially non-energy industries, exposes oil and gas companies to unfamiliar markets, technologies, and regulatory environments. A lack of expertise in these areas could result in strategic missteps, costly failures, or poor performance, weakening overall corporate resilience (Barabasi, 2016). Hence, this study argues that diversifying into sectors such as renewable energy, petrochemicals, or even unrelated industries provides oil and gas companies with alternative revenue streams. This helps them maintain financial stability during oil price downturns or demand fluctuations, strengthening their overall resilience in an unpredictable market.

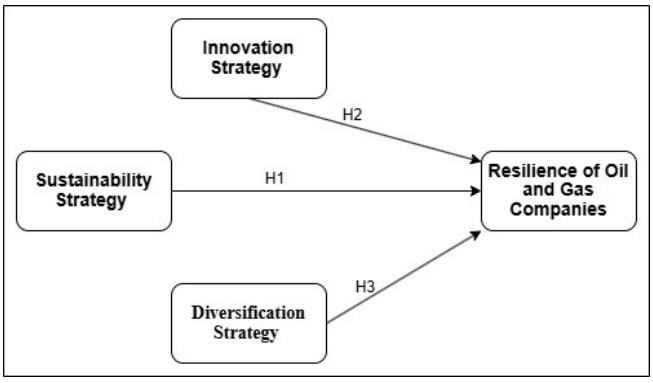

Figure 1. Conceptual framework

RESEARCH METHODOLOGY

Research method and sampling: The researcher used a questionnaire method to collect data from respondents by distributing written forms directly to them. This approach involved consulting respondents on key variables relevant to the investigation. The questionnaires, which included both closed and open-ended questions, were designed to facilitate easy coding and data analysis. Questionnaires were chosen for this study as they allowed the researcher to reach a large number of respondents in a short time, making it easier to gather relevant information(Wiredu, Yang, *et al*., 2021;Nsefumu *et al*., 2024). The first section of the questionnaire included a face sheet to collect data on the respondents' profiles. The second section focused on competitive strategy, while the third section contained questions on resilience. A five-point Likert scale was employed (1 = Strongly Agree, 2 = Agree, 3 = Not Sure, 4 = Disagree, 5 = Strongly Disagree) due to its reliable properties. This method enabled respondents to answer openly and provided a cost-effective way to gather a large volume of data in a short period.The measurement scales were adapted from previous studies with slight modifications to fit the context of this research (Wiredu, Bo, *et al*., 2021;Shantatula *et al.*, 2024). Participants were selected based on their intention toward resilience of oil and gas companiescomprising CEOs, General Managers, and Employees were required to have at least five years of experience in the oil sector in Equatorial Guinea. Through the survey distribution, the investigators provided a consent form and clarified the study's purposes to participants, assuring them that their responses would remain strictly confidential and used only for study purposes. Given the various sub-sectors within oil and gas companies to be studied, a stratified random sampling technique was applied in this research. In stratified random sampling, the population is divided into distinct groups, or strata, and a proportionate random sample is drawn from each to ensure that key variables are well-represented(Wiredu *et al*., 2020). Since the sub-sectors of oil and gas companies in this study contained varying numbers of enterprises, stratified random sampling with proportional allocation was used to ensure all sub-sectors were adequately represented based on the inclusion criteria. In the initial phase of data gathering, researchers contacted 380 respondents through personal outreach, WhatsApp, Instagram, and Facebook. By the end of the gathering period, an impressive 86% response rate (N = 330) was achieved, demonstrating strong engagement. As no clinical or animal experiments were involved, ethical approval was not necessary. Data gathering was conducted confidentially, and participation in the survey was entirely voluntary.

Demographic Profile of Respondents: The respondents were asked to provide information on gender, company's age, size, educational background, job position, and the company's size. Their replies were summarized using frequency and percentage distributions, as shown in Table 1 below. The study discovered that the demographic profile of the respondents involves of 200 males, accounting for 61% of the respondents and 130 females, accounting for 39% of the entire respondents. More so, in terms of company age, the results reveal that 31% of oil and gas companies had been in operation for 1-9 years, while 51% had a business history of 10-19 years. The final category, representing companies with 20 years or more in the industry, comprised 18% of the sample. These findings suggest that most oil and gas companies (51%) have accumulated 10-19 years of experience, indicating a substantial, though relatively recent, presence in the industry. This distribution highlights a significant portion of companies with adequate experience, positioning them well to navigate the challenges and opportunities in the oil and gas sector. Regarding educational background, the findings indicate that the majority of oil and gas company owners, 55%, held bachelor's degree, making this the most common qualification level among respondents. This group was followed by Masterholders, who accounted for 27% of the sample. A small minority, only 18%, had obtained a PhD. These results suggest that over three-quarters of oil and gas company workers possess qualifications at the undergraduatelevel, underscoring a predominantly technical and vocational educational background among industry leaders. This level of qualification likely reflects the skills deemed most practical or necessary for operational roles in the sector.Additionally, the study found that 15% (50) of the respondents are Chief Executive Officers, 32% (105) are General Managers, and 53% (175) are in the role of employees.Lastly,in terms of company size, results in Table1 show that the majority of oil and gas companies in Equatorial Guinea employed between 10-50 employees (55%), while 27% had 51-100 employees, and only 18% employed more than 100 people. This suggests that most oil and gas companies in Equatorial Guinea typically do not exceed 10-50 employees. This trend may be attributed to the high levels of technology employed within these companies, which reduces the need for large workforces by automating tasks that would otherwise require more personnel.

Table 1. Demographic Profile of Respondent's (N=330)

Characteristics	Category	Frequency	%
Gender	Male	200	61%
	Female	130	39%
Company Age	1-9	100	31%
	10–19	170	51%
	20 and above	60	18%
Educational Background	Undergraduate	180	55%
	Master degree	90	27%
	Ph.D. degree	60	18%
Job Position	Chief Executive Officer	50	15%
	General Manager	105	32%
	Employee	175	53%
Company Size	10-50	180	55%
	51-100	90	27%
	100 and above	60	18%

Measurements: The study's online survey was conducted in two phases. In Phase 1, respondents provided basic demographic information, including details such as gender, company age, educational background, job position, and company size, as summarized in Table 1. Phase 2 focused on measurement scales adapted from previous studies, outlined in Table 2. The questionnaire included two higher-order constructs that encompassed Sustainability Strategy (SUST), Innovation Strategy (INST), Diversification Strategy (DIST), and Resilience of Oil and Gas Companies (ROGC). To enhance accuracy and reliability, feedback from both oil and gas company employees and industry experts was gathered before the final distribution of the questionnaire. All constructs were measured on a 5-point Likert scale, with responses ranging from 1 (strongly disagree) to 5 (strongly agree).

Method of Data Analysis: The Partial Least Squares Structural Equation Modeling (PLS-SEM) method was utilized to evaluate the theoretical framework for several key reasons. First, PLS-SEM allows for precise estimation of relationships between variables by simultaneously assessing both structural and measurement models, thus offering a comprehensive analysis(Wiredu *et al*., 2024). This approach is especially advantageous for exploratory research, as it effectively handles complex relationships, including moderation and mediation effects, even with relatively small sample sizes (Hair *et al*., 2021). Additionally, PLS-SEM is widely adopted across various disciplines, particularly in numerous Sustainability Strategy(SUST) studies, highlighting its robustness and reliability in comparable research contexts (Wiredu, Yang, Saljoughipour, *et al*., 2023). This combination of precision, versatility, and established credibility makes PLS-SEM an ideal choice for this study.

RESULTS AND DISCUSSION

Measurement reliability and validity: The study employed several tests, including composite reliability, Cronbach's alpha, factor loadings, and average variance extracted (AVE), to evaluate the internal reliability of the constructs. According to Hair *et al*., (2021), a threshold above 0.70 is recommended for composite reliability, Cronbach's alpha, and factor loadings. As presented in Table 3, the results confirm that all constructs meet or surpass these thresholds, demonstrating robust internal reliability for the scales applied in this study.

Common method bias (CMB): Common method bias (CMB) can inflate the standard errors of regression coefficients, making it challenging to distinguish each predictor's unique effect on the dependent variable. To address multicollinearity, the study aims to ensure clearer and more meaningful interpretation of relationships among variables. In this analysis, multicollinearity was assessed using the variance inflation factor (VIF). As indicated in Table 3, all VIF scores are below the recommended threshold of 5.00, as Harman (1976)suggested, confirming that there are no issues with collinearity or CMB.

Assessing reflective measurement model

Discriminate validity (Fornell-Larcker Criterial): Discriminant validity is a critical aspect of construct validity, indicating how well a measurement precisely reflects its intended theoretical construct. According to Henseler *et al*. (2015), a study model is considered valid when the structural model constructs have values below the 0.90 threshold. This study utilized both the Heterotrait-Monotrait (HTMT) ratio and the Fornell & Larcker (1981)criteria. As shown in Table 4, the results from HTMT and Fornell & Larcker confirm that the proposed model exhibits strong psychometric properties.

Combined loadings and Cross loadings: Table 5 below presents the results for both cross-loadings and combined loadings of the constructs. The findings demonstrate that each variable loads more heavily on its associated items than on other variables, affirming that each construct achieves valid convergent validity through its item loadings. These results underscore the reliability and validity of the measurement instrument used in this study, ensuring accurate reflection of each theoretical construct. Additionally, the outcomes suggest that the study model is free from potential measurement bias, as supported by previous research (Ribeiro *et al*., 2022;Raihan, 2023;Otoo *et al*., 2024). This lack of bias enhances the robustness and trustworthiness of the model, further reinforcing the quality of the instrument.

Table 2. Measurement Details

Construct	No of Items	Source
Sustainability Strategy	4	(Lennenluecke, 2017)
Innovation Strategy	4	(hill, J. 2020)
Diversification Strategy	4	(Alberto and Jukka 2019)
Resilience of Oil and Gas Companies	4	(Dipak and Heather 2020)

Table 3. Summary of validity results

Indicators	Items	Factor Loadings	Cronbach's alpha (α>0.7)	Composite reliability (rho_c)	AVE (>0.5)	VIF
	SUST1	0.712	0.781	0.853	0.544	2.116
SUST	SUST2	0.725				1.840
	SUST3	0.876				3.565
	SUST4	0.848				4.929
	SUST5	0.773				1.459
	INST1	0.813	0.824	0.778	0.647	1.677
INST	INST2	0.821				1.913
	INST3	0.793				2.446
	INST4	0.852				2.185
	INST5	0.793				1.796
	DIST1	0.839	0.859	0.808	0.512	1.343
DIST	DIST2	0.751				2.427
	DIST3	0.727				3.586
	DIST4	0.850				4.173
	DIST5	0.883				3.567
	ROGC1	0.798	0.770	0.845	0.529	2.274
ROGC	ROGC2	0.807				1.922
	ROGC3	0.866				3.909
	ROGC4	0.814				3.253
	ROGC5	0.799				1.523

Table 4. Results of Discriminant Validity

Fornell & Larcker, (1981) Criteria					
	DIST	INST	ROGC	SUST	
DIST	0.760				
INST	0.421	0.839			
ROGC	0.307	0.452	0.727		
SUST	0.602	0.514	0.874	0.738	
HTMT Criteria					
	DIST	INST	ROGC	SUST	
DIST					
INST	0.524				
ROGC	0.605	0.754			
SUST	0.469	0.529	0.655		

Table 5. Item cross-loading matrix of the constructs

Items	DIST	INST	ROGC	SUST
DIST1	0.739	0.601	0.452	0.552
DIST2	0.851	0.365	0.672	0.466
DIST3	0.727	0.434	0.455	0.647
DIST4	0.850	0.533	0.557	0.577
DIST5	0.783	0.426	0.305	0.424
INST1	0.610	0.863	0.421	0.587
INST2	0.504	0.721	0.655	0.472
INST3	0.469	0.893	0.430	0.623
INST4	0.364	0.752	0.543	0.546
INST5	0.530	0.793	0.675	0.487
ROGC1	0.617	0.566	0.898	0.679
ROGC2	0.516	0.462	0.707	0.479
ROGC3	0.486	0.581	0.866	0.826
ROGC4	0.447	0.656	0.814	0.829
ROGC5	0.636	0.465	0.799	0.668
SUST1	0.527	0.620	0.694	0.712
SUST2	0.465	0.587	0.514	0.725
SUST3	0.503	0.643	0.832	0.876
SUST4	0.642	0.573	0.808	0.848
SUST5	0.518	0.758	0.698	0.773

Model Performance and Goodness of Fit: Evaluating effect size serves as a valuable complement to assessing the significance level (p-value) of relationships among variables, as it provides insight into the practical importance of observed effects within study models. In this research, effect size was examined using F^2 and R^2 tests, which help determine the strength and explanatory power of each predictor within the model. As shown in Table 6 below, the results indicate that the statistical coefficients for F^2 and R^2 suggest effect sizes ranging from small to large, reflecting a nuanced understanding of variable impact. Additionally, the model's goodness of fit was assessed through root mean square error (RMSE), RMS_theta, and normed fit index (NFI). These measures confirm the robustness and reliability of the analysis, reinforcing its validity. This solid analytical foundation provides policymakers with reliable insights and supports informed decision-making based on this study's findings.

Table 6. Structural Model Fit Summary

Variables	R^2	F^2
ROGC		
INST	0.234	0.237
DIST	0.761	0.089
SUST	0.243	0.130
Model Fitness Indicators	Saturated Model	Estimated Model
RMSE	0.269	0.279
NFI	0.234	0.254
(RMS_theta)	0.017	0.026

Hypotheses testing

Direct Path Analysis: The study proposed three direct relationships within the research model. Empirical findings demonstrated that SUST has a strong and significant direct effect on ROGC, as indicated by H1 ($\beta = 0.962$, $t = 9.205$, $p = 0.000$). Additionally, INST exerts a substantial direct influence on ROGC, supported by H2 ($\beta = 0.644$, $t = 13.181$, $p = 0.000$). The analysis further revealed that DIST positively impacts EEA, as shown by H3 ($\beta = 0.475$, $t = 10.351$, $p = 0.000$). The results of these direct paths are presented in Table 7, highlighting the significance and direction of each hypothesized relationship. Moreover, a visual representation of the structural model, along with the final model including estimated parameters, is provided in Figure 2. This comprehensive depiction facilitates a clearer understanding of the study's framework and the interconnections among key constructs.

DISCUSSION

The concept of SUST has attracted substantial interest from scholars examining resilience within the oil and gas sector. However, limited research has delved into the specific mechanisms by which SUST, INST, and DIST impact ROGC, especially in developing regions like Equatorial Guinea. Addressing this gap, the present study investigates the direct relationships between these key indicators. The findings affirm that SUST, INST, and DIST exert a positive and significant influence on ROGC among oil and gas companies in Equatorial Guinea, thereby validating hypotheses H1 through H3 proposed in this research. The result discovered that SUST has a positive and substantial impact on ROGC. A probable elucidation to this outcome could be that sustainability strategies often prioritize risk management, environmental stewardship, and social responsibility. By integrating these practices, oil and gas companies can mitigate operational risks, reduce exposure to regulatory penalties, and increase their adaptability in the face of industry disruptions. This proactive approach contributes to greater resilience, as companies are better prepared for environmental and market challenges (Maritz, 2020). Also, another reason for this interesting positive result maybe that adopting a sustainability strategy builds trust with stakeholders, including investors, regulators, and local communities. Positive stakeholder relations enhance a company's social license to operate and reduce conflicts with communities or environmental groups. By fostering goodwill and public support, oil and gas companies strengthen their resilience, as they are less vulnerable to reputational damage and more likely to maintain a stable operating environment (Edquist, *et al*., 2017). Similarly, the results of this research support H2 that INST has a significant influence on ROGC. The finding suggests that innovation strategies enable companies to adopt advanced technologies, such as predictive analytics and digital twins, which enhance flexibility in responding to market fluctuations and operational disruptions. By prioritizing innovation, oil and gas companies can quickly adapt to changes in demand, price shifts, and new regulatory requirements, thereby strengthening their resilience in dynamic market conditions (Weinberg, & A.S., 2020). Furthermore, through innovative approaches, such as automation and process optimization, companies can streamline operations, reduce costs, and improve energy efficiency. Lower operational costs and higher efficiency help companies maintain profitability even in volatile markets. These financial benefits not only improve stability but also allow companies to build financial reserves, making them more resilient to future disruptions and downturns(Wiredu, Yang, Inuwa, *et al*., 2023). Finally, the third hypothesis of this study confirmed that DIST positively influenceROGC. A possible explanation to this exciting result may be thatby diversifying their portfolios, oil and gas companies spread their revenue sources across different products, services, and sometimes even industries. This reduces their reliance on a single market or commodity price, helping to stabilize revenue streams in times of oil price volatility or market downturns. With a more balanced risk profile, these companies are better equipped to maintain operational continuity, thereby enhancing resilience (Wiredu *et al*., 2022). Moreover, diversification, particularly into renewable energy or alternative resources, enables companies to better align with environmental regulations and public expectations. By shifting some focus away from fossil fuels, companies can mitigate risks associated with stricter carbon emissions regulations, environmental

Table 7. Results of Hypothesis Analysis

Hypothesis	Relationship	β	T-stats	P-value	Hypothesis Supported
Direct Relationship					
H1	SUST ->ROGC	0.962***	9.205	0.000	Supported
H2	INST ->ROGC	0.644***	13.181	0.000	Supported
H3	DIST ->ROGC	0.475***	10.351	0.000	Supported

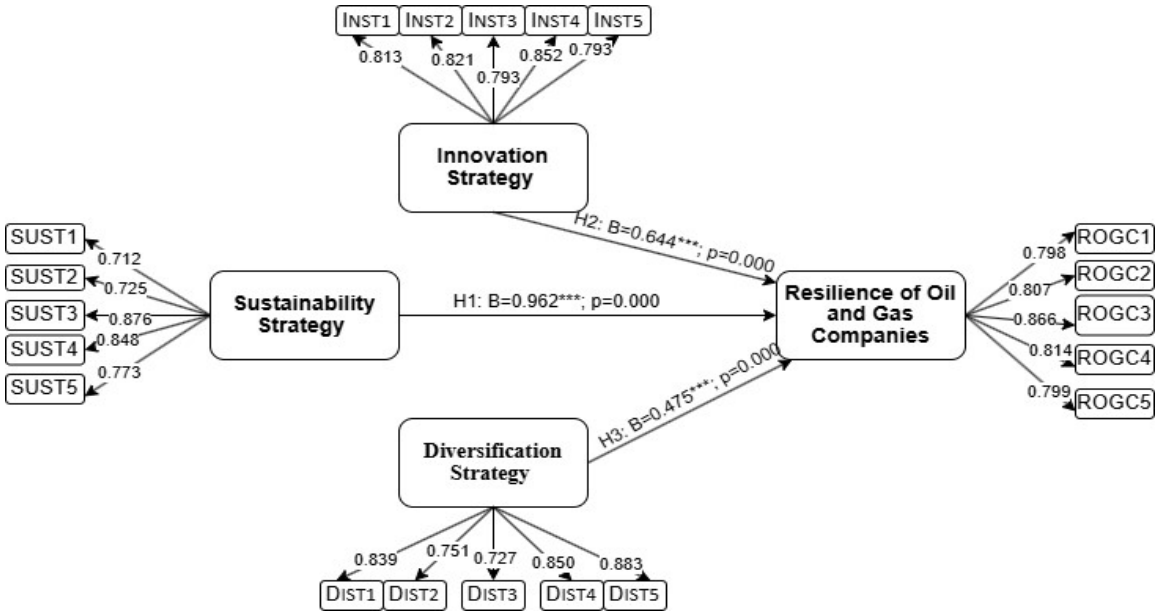

Figure 2. Final Model with Estimated Parameters

impact standards, and potential shifts in energy policy. This adaptability to regulatory changes supports long-term resilience, as companies are more prepared to meet evolving industry demands (Wiredu, Yang, Inuwa et al., 2023).

CONCLUSION

This research provides significant understandings into the association between SUST, INST, DIST, and ROGC. The study hypothesis was verifiedemploying the SEM-PLS methodology, and the empirical outcomesdisclosed that SUST, INST, and DIST have a positive influence on ROGC. This study outcome contributes to a deeper understanding of resilience dynamics in resource-rich developing economies, offering insights that are particularly relevant for policy and strategic planning in the region's oil and gas industry.

Practical Implications: The study offers the following practical contributions: Since the research results established that SUST, INST, and DISTare vital in enhancing ROGC, the studysuggests that; First, the adoption of sustainability, innovation, and diversification strategies makes oil and gas companies more resilient and appealing to long-term investors focused on environmental, social, and governance factors. By showcasing these strategies, companies can attract more stable capital, reduce borrowing costs, and improve access to green finance options, supporting their resilience and growth over time. Second, oil and gas companies must enhance regulatory compliance and risk mitigation. Implementing appropriate strategies positions companies to meet increasingly strict regulatory standards, particularly those related to emissions, environmental impact, and operational safety. By proactively addressing these requirements, companies reduce the likelihood of regulatory fines, legal liabilities, and operational shutdowns, which strengthens their resilience by maintaining smooth operations even amid policy shifts. Third, emphasizing sustainability, innovation, and diversification allows companies to stand out from traditional oil and gas players. These strategies help build a positive brand image and competitive advantage, especially in markets where customers, investors, and regulators demand higher sustainability and innovation standards. This distinct positioning helps attract customers and partners who prioritize resilience and sustainability, further strengthening the company's market position. Lastly, companies that invest in sustainability, innovation, and diversification tend to be more attractive to employees, especially those who value sustainable practices and career development opportunities in cutting-edge fields. By fostering a forward-looking, resilient culture, oil and gas companies can attract skilled talent, reduce turnover, and enhance employee engagement. This, in turn, builds a stronger internal workforce capable of adapting to industry shifts, reinforcing the organization's overall resilience.

Limitations and Future Research: Although the research offers valuable intuitions, some limitations should be recognized. First, the study focuses on oil and gas companies in Equatorial Guinea, which may limit the generalizability of the findings to other regions with different economic, regulatory, and social conditions. Hence, expanding the study to include other developing and developed countries could provide comparative insights and improve the generalizability of the results across diverse contexts, allowing for region-specific resilience strategies in the oil and gas sector. Additionally, the study relies primarily on quantitative data to assess the influence of sustainability, innovation, and diversification strategies, which may not capture the full complexity of strategic decision-making and resilience factors. Therefore, future studies could incorporate qualitative methods, such as interviews and case studies, to gain deeper insights into how these strategies are implemented and perceived within companies. This mixed-methods approach could provide a more comprehensive understanding of the strategic nuances involved. Lastly, the study does not extensively account for external factors, such as geopolitical risks, global oil price fluctuations, and environmental policies, which could impact the resilience of oil and gas companies. Thus, future research could examine how these external factors interact with sustainability, innovation, and diversification strategies to influence resilience. Analyzing the moderating or mediating role of external factors could lead to more robust models and more practical recommendations for industry resilience.

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