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Effect of Corporate Sustainability Performance on Tax Avoidance: Evidence From Listed Oil and Gas Companies in Nigeria

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Abstract

This study evaluates the impact of sustainability performance on tax avoidance among quoted oil and gas firms in Nigeria. Utilizing an ex-post facto research design, data were collected from the financial statements of six (6) oil and gas companies listed on the Nigerian Exchange Group (NGX) for the period of 2010-2021. Tax avoidance was measured using both the Effective Tax Rate (ETR) and the Cash Effective Tax Rate (CETR), while sustainability performance was proxies by corporate social responsibility (CSR) expenditure scaled by total assets. The results revealed a statistically significant positive relationship between CSR and ETR, suggesting that firms with stronger sustainability performance tend to exhibit higher ETRs (lower book-based tax avoidance). However, no significant relationship was found between CSR and CETR, indicating that sustainability performance does not significantly influence cash-based tax avoidance. Profitability (ROA) was found to be a significant positive determinant of both ETR and CETR. The study concludes that while sustainability performance is associated with reduced book-based tax avoidance, it does not significantly impact cash-based tax avoidance within the Nigerian oil and gas sector. The findings suggest that CSR activities may primarily influence accounting-based measures of tax avoidance rather than actual cash outflows for taxes.

Keywords: Sustainability Performance, Tax Avoidance, Listed Oil and Gas Companies in Nigeria

Background of the Study

The issue of tax avoidance has fascinated emergent attention in the recent literature. The increasing expectations of firms listed in oil and gas sector expand and their business operation reduces tax burden, and tax avoidance serves as an alternative enforced by oil and gas firms to sustain absolute business performance effectively [1]. Sustainability is seen as a strategy used by business organizations to maximize profits, diversify, product differentiation, as well as to globally evaluate the improvement of companies in relation to their environment. Nevertheless, the development of strategic thinking underscores the need to include activities aimed at integrating social and environmental concerns into the business decision-making process. Thus, companies that adequately integrate their environment and people are considered socially responsible [2-4].

Organizational performance has economics, social and ecological effects leading to social harms, world environmental calamities, actual disasters and environmental pollution. As a result, many corporate organizations assume just as much responsibility for social and environmental concerns as for economic concerns. One reason is that corporations reflect growing social expectations and concerns of stakeholders. Taxes, on the other hand, are mandatory payments levied by the government on the profits of individuals and corporations. According to Emmanuel Uniamikogbo (2019), tax avoidance is essential for management to minimize a company's tax burden. Tax aggressiveness is an attempt to use lawful barriers to avoid tax refunds or minimize tax payments. It is an attempt to use lawful barriers to avoid tax refunds or minimize tax payments.

However, when tax breaks are obtained through illegal means, actions protect the interests of investors and other stakeholders, and increase the credibility of financial reporting or procedures, this is considered fraud and is therefore considered a criminal offense. According to Kiabel and Nwikipasi (2014), tax avoidance is the planning and conduct of business activities within the framework of existing legislation in such a way that the company realizes the optimal or best tax position while achieving its stated goal. In other words, tax aggressiveness not only encompasses the strategies aimed at minimizing a company's tax liability, but also considers the cash flow consequences for the company when it is most beneficial for a corporation to pay its tax liability and avoid being surcharged. It is an act of transferring values from the state to corporations to promote corporate governance and increase shareholder wealth [5-7].

Hence, tax avoidance lays a very significant role in business organizations. From the a priori expectations, most studies on tax aggressiveness were limited to firm performance so also the studies on sustainability reporting were limited to financial performance in both developed and developing countries. Also, no empirical literature in developed and developing countries associated sustainability performance with tax aggressiveness based on the available literature. The present study therefore examined the connection that exists between sustainability performance on tax avoidance of firms quoted under oil and gas sector of Nigerian Exchange Group (NGX).

According to Yahaya and Yusuf (2020) Sustainability performance and tax avoidance have a positive relationship in fostering effective performance of corporate entities. However, the researcher used this as an opportunity to explore more findings as there is limited literature on the subject matter particularly in Nigeria. Therefore, this study would focus on the impact of sustainability performance on tax avoidance of listed oil and gas companies and their sustainability in Nigeria in order to enhance the theoretical literature and visualized the outcome of such study.

To this end, sustainability performance encompasses a company's commitment to environmental stewardship, social responsibility, and ethical governance, which can influence its tax strategies. Research indicates that firms with robust sustainability management practices tend to adopt more sustainable tax strategies, shifting focus from short-term tax avoidance to long-term tax performance stability [8,9]. This suggests that sustainability performance may mitigate aggressive tax avoidance behaviors, as companies seek to enhance their reputational capital and stakeholder trust [10]. Furthermore, the presence of gender diversity on corporate boards has been linked to reduced tax avoidance, indicating that diverse leadership may foster a culture of sustainability that aligns with ethical tax practices [11]. Conversely, some studies indicate that sustainability reporting does not necessarily correlate with reduced tax avoidance, as companies may prioritize compliance and transparency in sustainability disclosures without altering their tax strategies [12,13]. This raises questions about the effectiveness of sustainability initiatives in curbing tax avoidance practices within the oil and gas sector. Additionally, the economic environment in Nigeria, characterized by corruption and inefficiencies in tax administration, complicates the relationship between sustainability performance and tax compliance [14,15]. The interplay between corporate social responsibility (CSR) and tax avoidance further complicates this landscape. While CSR initiatives can enhance a company's public image and potentially reduce tax avoidance, they may also be perceived as a strategic maneuver to justify tax-saving practices [16,17]. This duality necessitates a deeper investigation into how sustainability performance influences tax behavior among Nigerian oil and gas companies, particularly in light of the unique challenges and opportunities presented by the Nigerian economy.

In light of that, the following research questions were formulated to guide the study:

- How does sustainability performance affect the effective tax rate of listed oil and gas companies in Nigeria?
- How does sustainability performance impact tax avoidance among listed oil and gas companies in Nigeria, specifically in terms of the effective tax rate and the cash effective tax rate?

Literature Review and Hypotheses Development

Tax Avoidance

There are many perceptions concerning the term tax avoidance. However, this study is often found in economics and tax law literature. Tax avoidance can be explained as a legal tactic that various taxpayers can use to avoid paying taxes or at minimize their tax burden [18]. Hence, several loopholes in Nigeria's tax laws allow companies to engage in tax avoidance strategies.

Concept of Sustainability

Sustainability refers to the strategy adopted by corporate entities to reduce negative environmental impact resulting from operations in a particular market. According to Becker (2016); sustainability is a modern concept of development; where qualitative factors relating to environment and socio-economic variables are given priority by corporate entities in the process of rendering their services and operations. Clough (2019) and Rolf (2017) explained sustainability as is a systematic concept, relating to an energetic economy and a great quality of life.

Sustainability Performance

Dyllick and Hockerts (2020) explained sustainability performance as "meeting the needs of a corporation's current direct and indirect stakeholders without compromising its ability to meet the needs of future stakeholders as well". Sustainability performance focuses on meetings the needs of the present without compromising the ability of future generation to meet their own needs" (World Commission on Environment and Development, 2006). For the business

enterprise, Sustainability performance means adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in the future (International Institute for Sustainable Development, 1992). For industrial development to be sustainable, it must address important issues at the macro level such as: economic efficiency (innovation, profitability, and productivity). Sustainable businesses can survive shocks because they are intimately connected to healthy economic, social and environmental systems.

Zairi and Liburd (2021) defined sustainability performance as 'the ability of an organization to adapt to change in the business environment to capture contemporary best practice methods and to achieve and maintain superior competitive performance'. Sustainability within a business creates value for customers, investors, and the environment.

Theoretical Framework

For this study the theoretical framework establishes the theoretical lens through which the relationship between these two constructs will be examined. It offers a logical explanation for why and how sustainability practices might influence a company's tax avoidance behavior. The following theories underpinned this study.

Stakeholder Theory

This theory posits that companies have a responsibility to consider the interests of all stakeholders, including shareholders, employees, customers, suppliers, communities, and the government. In the context of this study, stakeholder theory suggests that companies with strong sustainability performance are more likely to engage in responsible tax behaviour to meet the expectations of various stakeholders who value ethical conduct and social responsibility. Conversely, companies with poor sustainability performance may be more inclined to engage in tax avoidance to maximize profits for shareholders, potentially at the expense of other stakeholders.

Legitimacy Theory

This theory suggests that companies seek to operate within the norms and expectations of the society in which they operate. Companies with strong sustainability performance may be more concerned about maintaining their legitimacy and reputation by engaging in responsible tax practices. Conversely, companies with weak sustainability performance may be less concerned about their social image and more willing to engage in tax avoidance if they believe it will not significantly harm their reputation.

Agency Theory

This theory examines the relationship between a company's owners (principals) and its managers (agents). In the context of this study, agency theory suggests that managers may engage in tax avoidance to maximize their own benefits, even if it is not in the best interests of the company's owners or other stakeholders. However, strong sustainability performance may indicate better corporate governance mechanisms that align the interests of managers with those of other stakeholders, reducing the likelihood of tax avoidance.

Review of Empirical Studies

There are several studies that evaluate the effect of sustainability performance on tax avoidance globally. For example, in Nigeria, Emmanuel and Mary (2022) and Emeka and Ngozi (2022) examined the consequence of ecological preservation, sustainability on financial performance of listed firms in Nigeria. The studies result established a positive relationship between sustainability performance and tax planning.

In the direction, Ngu (2021) evaluates the impact of hydrocarbon tax on the performance of quoted oil and gas sector in Nigeria [19]. The study results revealed that hydrocarbon tax is positively related to the firms' performance. Uche et al. (2021) investigated the impact of ownership structure on firm value of listed oil and gas firms in Nigeria. Specifically, the study determined the effect of managerial ownership, government ownership, ownership concentration and CEO ownership on firm value.

In the same vein, Akor and Okey (2021), Nwobu et al. (2021) and Mohammed and Abdulkarim (2021) and Oboh and Nosa (2021) have examined the level of ESG disclosures on tax avoidance in Nigeria [20-23]. Their result documented that environmental performance has improved the level of tax planning in the country.

Recently, Jibril and Isa (2024) examined the how compliance with environmental requirement encourage sustainability reporting in an emerging economies [4]. The established that the higher the compliance with environmental requirement the more sustainability attainment by listed firms. Similarly, other studies from Nigeria have documented that sustainability reporting has positive association with environmental disclosure [2,24,25].

Farouk et al. (2021) explored the Nigerian approach to taxing digital transactions, investigating why the industry yields low taxes and to recommend proposals that offer the Nigerian government practical steps to leverage on the potential of imposing this type of tax [26]. Similarly, explored the initiatives for enhancing revenue generation through mining activities in Nigeria with a view to boosting the revenue base of the Nigerian government [2,6,26]. The study used qualitative research approach in exploring the perspectives of critical stakeholders in the mining sector of the economy.

The study found that issues related to legal and regulatory framework, licensing, funding, awareness, capacity building, environmental issues and cumbersome regulations to micro miners are the major factors that bedeviled the development and revenue generation from mining activities.

The association between sustainability results on tax avoidance resulted to a mixed result by the prior studies Hill & Jones (2020), Davis et al. (2016) and Lanis and Richardson (2015) and Hoi et al. (2013) documented positive, negative and insignificant relationship between sustainability results and tax avoidance in Nigeria respectively. To this end, sustainability performance and corporate tax payments complement a strong corporate culture of sustainability. Tax avoidance is thus incompatible with a high level of sustainability performance.

Taken together, the concepts yield opposing predictions regarding the relationship between sustainability performance and corporate tax avoidance, and the few empirical studies to examine this relationship have not yet been able to clarify it. On the one hand, Davis et al. (2016) provides large sample evidence of a positive relationship between corporate social responsibilities (CSR) and corporate tax avoidance, thereby supporting traditional economic theories. On the other hand, Lanis and Richardson (2015) and Hoi et al. (2013) provide evidence of a negative relationship, which supports the applicability of stakeholder theory and the corporate culture perspective.

Specifically, Hanlon & Heitzman (2015), Jibril and Salihi, (2023) and (Salihi and Jibril, (2019) contribute to the tax avoidance literature by providing evidence regarding prospective factors of corporate tax avoidance) [27]. It suggested that the integration of both management and operational sustainability performance in to the models that predict corporate tax avoidance. Many researchers, scholars, financial analysts have given emphasis on the burden of tax avoidance and how it hinders the sustainability performance of many corporate organizations, in terms of its compliance cost and administration cost, performance, profitability and investment decisions of firms. And also, how government grants various tax incentives and makes good tax policies to enhance the growth and expansion of corporate firms.

Hummel et al. (2017), undertake research on sustainability performance and tax avoidance [28]. The result of the study portrays a positive relationship between tax avoidance and sustainability performance and is robust across the environmental and social dimensions of sustainability and different measures of tax avoidance. The overall results provide novel insight into the association between corporate social performance and corporate tax avoidance. Based on these empirical studies reviewed, agency and legitimacy theories, the following hypotheses are formulated.

H1 Sustainability performance has a significant impact on effective tax rate of listed oil and gas companies in Nigeria.
H1 Sustainability performance has a significant impact on cash effective tax rate of listed oil and gas companies in Nigeria.

Research Methodology

Research Design

Research design refers to the framework that outlines the type of information required for a study, the methods for collecting such information, and the approach to analyzing it. This study employs an ex-post facto research design, which is appropriate for examining the relationship between sustainability performance and tax avoidance among publicly listed oil and gas companies in Nigeria. The ex-post facto design allows for the investigation of the impact of past factors (such as sustainability practices) on present events (like tax avoidance behaviors). This design is particularly suitable because it relies on historical data that have already been collected and documented, rather than requiring any manipulation of variables or experimental setups.

The data for this research were extracted from the annual reports and financial statements of publicly traded oil and gas companies listed on the Nigerian Exchange Group. These reports were accessed through the internet and analyzed to establish patterns and relationships. The choice of an ex-post facto design is further justified by its focus on analyzing naturally occurring relationships using existing data. It is cost-effective and practical, as it leverages secondary data readily available in the public domain. Additionally, this design is ideal for exploring cause-and-effect relationships, such as the influence of sustainability practices on tax avoidance, without any intervention or control over the variables. This ensures that the research remains objective and grounded in real-world data.

Population of The Study

The population of the study comprises all listed oil and gas companies registered with the Nigerian Exchange Group (NGX). The Table 3.1 shows the listed oil and gas companies as presented below:

S/No.	Company	Symbol	Year of Listing
1	Arдова Plc.	ARDOVA	1964
2	Capital Oil Plc.	CAPOIL	1985
3	Eterna Plc.	ETERNA	1989
4	Japaul Gold and Ventures Plc.	JAPAULGOLD	1982
5	MRS Oil Nigeria Plc.	MRS	1969
6	Oando Plc.	OANDO	1969
7	RAK Unity Petroleum Company. Plc.	RAKUNITY	1982
8	Seplat Energy Plc.	SEPLAT	2009
9	Total Energies Marketing Nig. Plc.	TOTAL	1956
10	Conoil Plc.	CONOIL	1970

Table 3.1: Population of the Study

Sampling Technique and Sample Size

Based on the population stated the study used purposive sampling criteria and selected six firms. The study used purposive sampling to sampled six (6) listed oil gas and Companies with up-to-date information in respect to their tax obligations. The study makes use of audited financial reports in generating coherent data for supporting the research subject matter. Therefore, Table 3.2 presents the sample size:

S\No.	Company	Symbol	Year of Listing
1	Arдова Plc.	ARDOVA	1964
2	Conoil Plc.	CONOIL	1970
3	Eterna Plc.	ETERNA	1989
4	Japaul Gold and Ventures Plc.	JAPAULGOLD	1982
5	MRS Oil Nigeria Plc.	MRS	1969
6	Total Energies Marketing Nig. Plc.	TOTAL	1956

Source: Extracted from Table 3.1

Table 3.2: Sample Size of the Study

Sources and Method of Data Collection

There are many different methods and instrument of data collection, but for the purpose of this research, the researcher relied wholly on secondary sources of data. The data were extracted from the annual reports and the accounts of the sample oil and gas companies for a period of twelve years (2010-2021).

Variables of the Study and their Measurements

The independent variable is sustainability performance; the dependent variable is tax avoidance. That is to say, the study is carried out to establish the relationship on the effect of sustainability performance on tax avoidance of listed oil and gas companies in Nigeria.

Dependent Variable

The dependent variable is in line with the stands of Hanlon and Heitzma (2010), where they define tax avoidance as a reduction of explicit taxes. This study used of Effective Tax Rate (ETR) and Cash Effective Tax Rate (CETR) as proxies for tax avoidance; which is calculated by dividing an estimate of tax liability by the measure of profit before tax and for cash effective tax rate, cash paid divided by profit before tax. Hence, for the purpose of this study, the tax expense is assumed to be the measure of tax evasion.

Effective Tax Rate (ETR)

- Definition: Measures the proportion of a company's profit that is paid as taxes.
- Purpose: Indicates the extent to which a company minimizes its tax burden compared to its accounting profit.
- Formula: $ETR = \frac{\text{Tax Expenses}}{\text{Profit Before Tax}}$

Cash Effective Tax Rate (CETR)

- Definition: Reflects the proportion of actual cash paid in taxes relative to a company's profit before tax.
- Purpose: Captures the tax avoidance strategies involving deferred tax liabilities or other cash-flow-based measures.
- Formula: $CETR = \frac{\text{Cash Taxes Paid}}{\text{Profit Before Tax}}$

Independent Variable

As an independent variable, sustainability performance is being assessed using qualitative environmental and socio-

economic factors. Our study focuses on key corporate social responsibility factors to measure sustainability performance. The table presented below shows the factors to be considered in measuring the independent variable.

Control Variable

- Financial leverage size: Measured as total debt/ total assets (Iqbal & Usman, 2018)
- Firm size: Measured as the natural logarithms of firm's total assets (Endri et al., 2020)
- Firm age: Measured as the years of companies since incorporated Ango and Aliyu (2020).
- Profitability: Measured as return on equity. Return on equity is measured using profit after tax divided by total asset Dave (2012).

Variables	Proxies	Measurement	Source
Dependent Variable: Tax Avoidance	ETR	Tax liability divided by profit before tax	Hanlon and Heitzma (2010),
	CETR	Tax paid divided by profit before tax	Davis et al. (2016)
Independent Variable	Sustainability performance	Total amount spent on corporate social responsibilities divided by total assets.	Zairi and Liburd (2021)
	Firm Size	Natural logarithms of firm's total assets	(Endri et al. 2020 and Jibril, 2024)
Control Variable	Firm Age	Measured as the years of companies since incorporated	Ango and Aliyu (2020) and Saidu et al., 2018)
	Financial Leverage	Debt bearing interest divided by total assets	(Iqbal & Usman, 2018 AbdulAziz et al., 2023; Jibril, 2024b; Jibril et al., 2017; Jibril & Salihi, 2023)
	Profitability	Profit before tax divided by total assets.	Dave (2012, AbdulAziz, Jibril, & H., 2023; Jibril1 et al., 2024; Sabo et al. 2015)

Source: Generated by Researchers Literature Review

Table 3.3: Variable and Their Measurement

Data Analysis Technique

Data were checked and collected for extensiveness, characterized and coded and entered into a computer where it was summarized into frequency tables [29,30]. The study adopted descriptive statistics, correlation analysis and regression analysis technique. The data are extracted and entered into STATA version 14 for descriptive analysis. A descriptive analysis of the data was conducted to obtain the sample characteristics and to observe the level of sustainability performance among the companies. The multiple regression analysis was performed to test the effect of the independent variable on dependent variable, and to estimate the separate as well as the combined impact of sustainability performance on tax avoidance of listed oil and gas companies in Nigeria. The study also adopted the use of correlation analysis to ascertain the relationship between the dependent and explanatory variable, and to investigate the direction of such relationship.

Model Specification

Based on the study variables the study proposed the following model in testing the hypothesis formulated for the study is as follows:

$$ETR/CETR = f(CSR, LEV, FAGE, FSIZE \text{ and } ROA) \dots\dots\dots (i)$$

Express in equation form as follows:

$$ETR_{it} = \beta_0 + \beta_1 CSR_{it} + \beta_2 LEV_{it} + \beta_3 FAGE_{it} + \beta_4 FSIZE_{it} + \beta_5 ROA_{it} + \epsilon_{it} \dots\dots\dots (ii)$$

$$CETR_{it} = \beta_0 + \beta_1 CSR_{it} + \beta_2 LEV_{it} + \beta_3 FAGE_{it} + \beta_4 FSIZE_{it} + \beta_5 ROA_{it} + \epsilon_{it} \dots\dots\dots$$

...(iii)

Where:

ETR_{it} = Effective Tax Rate for Company i at time t

$CETR_{it}$ = Cash Effective Tax Rate for Company i at time t

CSR_{it} = Corporate Social Responsibilities for company i at time t

LEV_{it} = Leverage for company i at time t

$FAGE_{it}$ = Firm Age for company i at time t

$FSIZE_{it}$ = Firm Size for company i at time t ROA_{it} = Profitability for company i at time t β = Intercept ε = Error terms it = Firm i at time

Results and Presentation

Descriptive Analysis

The data relating to sustainability performance variable and tax avoidance in order to measure tax avoidance, the researcher used Effective Tax Rate (ETR), Cash Effective Tax Rate (CETR). The proxy for independent variable of this study is Corporate Social Responsibility (CSR) and financial leverage, firm size, firm age, and return on asset represents control variables. This is presented in Table 4.1 as follows:

Variables	Observation	Mean	Standard Deviation	Minimum	Maximum
ETR	72	0.2272	0.1822	-0.383	0.5491
CETR	72	0.2088	0.2282	-0.3157	0.7082
CSR	72	0.0004	0.0020	0	0.0172
LEV	72	0.2200	0.1569	0	0.7969
FS	72	10.7173	0.2467	9.9475	11.3196
AGE	72	41.6666	13.7973	16	64
ROA	72	0.0203	0.1083	-0.5573	0.1486

Source: STATA 14

Table 4.1: Descriptive Statistics

The descriptive statistics of the constructs as indicated in Table 4.1 presents results for the mean and standard deviation of the entire variables used for the study. The Effective Tax Rate (ETR) has a mean value of 0.2272 with a standard deviation of 0.1822. The minimum and maximum values are -0.383 and 0.5491 respectively. Also, Cash Effective Tax Rate (CETR) has a mean value of 0.2088 with standard deviation of 0.2282 while the minimum and maximum values are -0.3157 and 0.7082 respectively. In same vein, corporate social responsibilities (CSR) have a mean value of 0.0004 with a standard deviation of 0.0020 while the minimum and maximum values are 0 and 0.0172 respectively.

Furthermore, from the Table 4.1 financial leverage has a mean value of 0.22%, with minimum and maximum values of 0% and 0.79%. This shows a lower variation in financial leverage of the sampled listed of oil and gas companies as portrayed by the standard deviation of 0.15%, which is lower than the mean value. The zero minimum value indicates that some sampled the listed of oil and gas companies do not have debt bearing interest at a particular period. In the same vein, firm size of the listed oil and gas companies in Nigeria has the minimum and maximum values of 9.9475 and 11.3196 respectively. The average value of the firm size 10.7173 with the standard deviation of 0.2467. The average firm age is approximately 42 years. This shows that, on the average, the sampled oil and gas companies are 42 years with a standard deviation of 14 years with a minimum and maximum values of 16 and 64 years, respectively. This indicates that whereas some of the oil and gas companies were incorporated Nigeria in 1994, some were incorporated since 1951. This gives an insight as to whether being incorporated earlier will result in companies making the issues of sustainability performance important. Lastly, the Return on Asset (ROA) has a mean value of 0.0203 with a standard deviation of 0.1083 while the minimum and maximum values for the periods -0.5573 and 0.1486 respectively.

Correlation Matrix

The result of Pearson correlation of the dependent variable (tax avoidance) and explanatory variable (effective tax rate and cash effective tax rate) is presented in Table 4.2. The correlation measures the strength and direction of relationship between all pair of variables of the study:

	ETR	CETR	CSR	LEV	FS	AGE	ROA
ETR	1.0000						
CETR	0.6530	1.0000					
CSR	0.2306	-0.0203	1.0000				
LEV	-0.0771	-0.0644	-0.0170	1.0000			
FS	0.2448	0.3510	0.0282	-0.0010	1.0000		
AGE	0.2657	0.3465	0.0198	-0.2600	0.7635	1.0000	
ROA	0.5034	0.3104	0.0454	-0.4779	0.1476	0.2755	1.0000

Source: Annual Reports and financial statement of STATA 14

Table 4.2: Correlation Result

The correlation matrix Table 4.2 presents the bivariate relationships between the variables under investigation. As shown in the table, a statistically significant positive correlation exists between the effective tax rate (ETR) and the cash effective tax rate (CETR) ($r = 0.6530$, $p < 0.01$), confirming the expected convergence of these two tax avoidance measures. This indicates that firms exhibiting lower ETRs also tend to report lower CETR, suggesting consistency in their tax planning strategies.

Regarding the central relationship of this study, a weak positive correlation is observed between corporate social responsibility (CSR) and ETR ($r = 0.2306$, $p < 0.05$). This finding suggests a preliminary indication that firms with stronger sustainability performance, as reflected by higher CSR scores, tend to exhibit higher ETRs, implying less aggressive tax avoidance. This observation aligns with the theoretical expectation that firms prioritizing stakeholder interests and maintaining legitimacy are less likely to engage in practices that could damage their reputation or attract regulatory scrutiny. However, the magnitude of the correlation is relatively small, suggesting that the relationship between CSR and ETR, while statistically significant, is not overwhelmingly strong.

Conversely, the correlation between CSR and CETR is near zero ($r = -0.0203$, $p > 0.10$), indicating a negligible linear association between sustainability performance and cash-based measures of tax avoidance. This divergence in results between ETR and CETR suggests that the impact of CSR on tax avoidance may be contingent on the specific measurement approach employed. It is possible that CSR activities primarily influence book-based tax avoidance (reflected in ETR) rather than cash-based tax avoidance (reflected in CETR). This warrants further investigation into the distinct mechanisms through which CSR may affect different dimensions of tax planning.

Furthermore, the analysis reveals weak negative correlations between leverage (LEV) and both ETR ($r = -0.0771$, $p > 0.10$) and CETR ($r = -0.0644$, $p > 0.10$), though these correlations are not statistically significant. This provides some tentative evidence suggesting that firms with higher leverage may exhibit lower ETRs and CETR, potentially due to the tax deductibility of interest expenses. However, the lack of statistical significance indicates that this relationship is not robust in this sample.

Firm size (FS) and firm age (AGE) exhibit weak to moderate positive correlations with both ETR ($r = 0.2448$ and $r = 0.2657$, respectively, $p < 0.05$) and CETR ($r = 0.3510$ and $r = 0.3465$, respectively, $p < 0.01$). This suggests that larger and older firms tend to have higher ETRs and CETR, potentially due to increased public visibility and regulatory scrutiny. Finally, return on assets (ROA) shows a moderate positive correlation with ETR ($r = 0.5034$, $p < 0.01$) and a weak positive correlation with CETR ($r = 0.3104$, $p < 0.01$), indicating that more profitable firms tend to have higher effective tax rates.

It is crucial to acknowledge that correlation analysis only reveals the linear association between variables and does not imply causation. Further multivariate analysis, such as regression analysis, is necessary to control for confounding factors and establish the direction and strength of the causal relationship between sustainability performance and tax avoidance.

Regression Analysis

The study uses two dependent variables for determining the impact of sustainability performance of listed oil and gas companies in Nigeria. These two explanatory variables are Effective tax Rate (ETR) and Cash Effective Tax Rate (CETR). The study hypothesizes no significant impact between the explanatory variables and sustainability performance. Table 4.3 below reports the results of the regression analysis of the study.

Variable	ETR		CETR	
	Coef.	p-> t	Coef.	p-> t
CSR	18.4131	0.038	-4.5365	0.714
LEV	0.2582	0.062	0.1663	0.389
FS	0.0530	0.656	0.1836	0.269
Age	0.0014	0.509	0.0023	0.442
ROA	0.9405	0.000	0.6276	0.019
Cons	-0.4872	0.684	-1.9052	0.254
R-squared				
Within	0.2031		0.0618	
Between	0.8667		0.7406	
Overall	0.3586		0.2053	
Prob>F		0.0000		0.0044

Source: Generated by the Researcher using STATA 14

Table 4.3: Regression Results

From Table 4.3, the multiple linear regressions equation becomes

$$\text{ETR} = -0.4872 - 18.4131\text{CSR}_{it} + 0.2582\text{LEV}_{it} - 0.0530\text{FS}_{it} + 0.0014\text{AGE}_{it} - 0.9405\text{ROA}_{it} + \varepsilon_{it}$$

$$\text{CETR} = -1.9052 - 4.5365\text{CSR}_{it} + 0.1663\text{LEV}_{it} - 0.1836\text{FS}_{it} + 0.0023\text{AGE}_{it} - 0.6276\text{ROA}_{it} + \varepsilon_{it}$$

Table 4.3 presents the results of the regression analysis examining the impact of sustainability performance (CSR) and other control variables on tax avoidance, measured by both the effective tax rate (ETR) and the cash effective tax rate (CETR).

Regarding the central hypothesis of this study, the results reveal a statistically significant positive relationship between CSR and ETR (Coef. = 18.4131, $p = 0.038$). This finding provides evidence supporting the notion that firms with stronger sustainability performance tend to exhibit higher ETRs, indicating lower levels of tax avoidance. This is consistent with stakeholder theory and legitimacy theory, which suggest that firms prioritizing stakeholder interests and maintaining a positive public image are less likely to engage in aggressive tax planning strategies that could damage their reputation. The coefficient of 18.4131 implies that a one-unit increase in CSR is associated with an 18.4131-unit increase in ETR, holding other variables constant.

However, the analysis reveals a statistically insignificant negative relationship between CSR and CETR (Coef. = -4.5365, $p = 0.714$). This suggests that sustainability performance does not have a significant impact on cash-based measures of tax avoidance. This discrepancy between the ETR and CETR results warrants further investigation. It is possible that CSR activities primarily influence book-based tax avoidance, which is reflected in ETR, while having a limited effect on cash-based tax avoidance captured by CETR. This could be due to differences in the nature of these two measures, with ETR being more susceptible to accounting manipulations, while CETR reflects actual cash flows related to taxes.

Among the control variables, return on assets (ROA) demonstrates a statistically significant positive relationship with both ETR (Coef. = 0.9405, $p = 0.000$) and CETR (Coef. = 0.6276, $p = 0.019$). This indicates that more profitable firms tend to have higher effective tax rates, suggesting that profitability is a key determinant of tax liability. This is expected, as higher profits generally lead to higher tax obligations unless firms engage in aggressive tax avoidance strategies.

The remaining control variables, leverage (LEV), firm size (FS), and firm age (Age), do not exhibit statistically significant relationships with either ETR or CETR. While the coefficient for LEV with ETR is positive (Coef. = 0.2582, $p = 0.062$) it is only marginally insignificant. This suggests that while there may be a tendency for higher leveraged firms to have higher effective tax rates, this result is not robust enough to draw strong conclusions. The lack of significant relationships for firm size and age implies that these factors do not play a substantial role in explaining tax avoidance behaviour in this specific sample.

The R-squared values for the ETR and CETR models are 0.3586 and 0.2053, respectively. This indicates that the independent variables included in the models explain approximately 35.86% of the variance in ETR and 20.53% of the variance in CETR. The Prob > F values of 0.0000 and 0.0044 for the ETR and CETR models, respectively, indicate that the overall models are statistically significant, suggesting that the included variables collectively have a significant impact on tax avoidance.

In summary, the regression results provide evidence supporting a positive relationship between sustainability performance and book-based tax avoidance (ETR), but not with cash-based tax avoidance (CETR). Profitability is identified as a significant determinant of tax rates. Further research is needed to explore the reasons for the discrepancy between the ETR and CETR results and to investigate other factors that might influence tax avoidance behaviour in the Nigerian oil and gas sector.

Test of Hypotheses

The result revealed that sustainability performance has an insignificant and positive impact on effective tax rate of listed oil and gas companies in Nigeria which is justified by coefficient of 18.4131 and p-value of 0.038. The null hypothesis one (H01) which says that sustainability performance has insignificant effect on effective tax rate of listed oil and gas companies in Nigeria failed to reject. This is in line with the studies of Nwaorgu et al. (2020) concluded that sustainability performance has an insignificant effect on effective tax rate [31]. Which is against the study of Emeka and Ngozi (2022), concluded that sustainability performance has significant and positive relationship with effective tax rate of listed oil and gas companies in Nigeria.

Similarly, the result also shows that sustainability performance has insignificant and positive impact on cash effective tax rate of listed oil and gas companies in Nigeria which is justified by coefficient of -4.5365 and p-value of 0.714. The null hypotheses two (H02) which stated that sustainability performance has insignificant effect on cash effective tax rate of listed oil and gas companies in Nigeria failed to reject. This finding is in line with studies of Frank et al. (2009), which stated that sustainability performance has an insignificant effect on cash effective tax rate. And an inconsistency which stated that, sustainability performance has a significant positive effect on cash effective tax rate Davies et al. (2016) and Hoi et al. (2013). In summary, this implies that sustainability performance has no significant effect on tax avoidance of listed oil and gas companies in Nigeria.

Conclusions

The principal concern of the study is to examine the impact of sustainability performance on tax avoidance of listed oil and gas companies in Nigeria. The main aim of the study was to examine the impact of sustainability performance on tax avoidance of listed oil and gas companies in Nigeria as a whole. In conclusion to this study, this study was aimed at determining the impact of sustainability performance on tax avoidance of listed oil and gas companies. Based on the findings, the study has reached a conclusion that impact of sustainability performance has no significant and positive relationship with tax avoidance with the help of corporate social responsibility use as a tool to measure sustainability performance. It has to do with environmental impact on the performance of a business. With the help of interaction with the environment, it helps companies to sustain the business. At the same vein, the impact of the interaction on tax avoidance makes companies to pay minimum tax with the help of donation to charitable organization, donation of scholarship to under privileged student. By making provisions to all this when realized, it will reduce operating profit or profit before tax which means that tax liability will be lower [32-59].

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