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Holistic Integration of ESG Financial Report Framework and Profitability of Oil and Gas Firms in Nigeria

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ABSTRACT: This study analyzed the holistic integration of ESG financial report framework and profitability of oil and gas firms in Nigeria. The specific objectives were to determine the; impact of environmental financial report on profitability of firms in Nigeria. Examine the effect of social financial report on profitability of firms in Nigeria. Examine the effect of governance financial report on profitability of firms in Nigeria. The variables were financial performance as the dependent variables while environmental financial report, social financial report and governance financial report. Panel Least Squared (PLS) method of data analysis was used**.** The study also employed descriptive statistics, and correlation in this study. The population of this study consists of all the oil and gas firms listed on the Nigerian Exchange limited and has complete financial records on their websites or Nigerian Exchange limited for the period of 2012–2023. The study selected 10 firms. From the analysis result the study found that; Environmental financial report has no significant effect on performance of oil and gas in Nigeria, Social financial report has significant effect on performance of oil and gas in Nigeria, Governance financial report on has no significant effect on performance of oil and gas in Nigeria. The study recommended that Oil and gas firms should adopt environmental reporting not merely as a regulatory requirement but as a strategic investment tool. More so, management should integrate environmental risk assessment, pollution control, and energy efficiency initiatives into financial planning.

Keywords: environmental financial report, governance financial report, social financial report, profitability

INTRODUCTION

In the quest for survival, profit making organizations are generally established with an objective to satisfy consumers with the view to make profit. They engage in so many activities which tend to have some severe harmful impacts on the environment, employees and the society at large. These activities oftentimes impacts negatively on the livings of people (Uwalomwa, Obarakpo,

Olubukola, Osariemen, Gbenedio & Oluwagbemi, 2020). Some of these negative effects include; air and water pollution, loss of biodiversity, shortages in freshwater availability, global warming, extreme weather events, environmental noise and utter neglect and disregard for the protection of the immediate and future environments (Asuquo, Dada & Onyeogaziri 2018; Anusi & Nduka, 2022). In order to cushion the negative effect of these activities on the profit, people and planet, firms try to balance the needs of their stakeholders through corporate responsibilities and reporting. This is done through sustainability reporting.

Sustainability reporting is one of the contemporary issues in accounting and it emerged as a result of advancements in technology which brings an unprecedented footprint on the environment and society where companies' economic activities are carried out. In response to these footprints, Oti, Effiong and Akpan (2023) noted that companies institute environmental management systems and sustainable business practices to combat these environmental impacts and serve environmental conservation costs. But the peculiar nature of oil and gas production activities makes it near impossible for some of these sustainability measures to function, as such, some of the environmental impacts are inevitable. Sustainability disclosure is seen as a measurement, analysis and communication of interactions and connections between social, environmental, and economic issues that make up the three dimensions of sustainability.

Global developments in businesses, especially in relation to sustainable development have underscored the importance of companies to integrate information on sustainability issues into their corporate reporting mechanism (Oti, Effiong & Akpan, 2019). This is also informed by the fact that the accountability aspect of financial reporting of companies will not be complete without incorporating sustainability reporting in the annual financial reports, hence the need for the inclusion of sustainability disclosures incorporate annual reports to balance the needs of stakeholders. In accounting disclosure literature, sustainability reporting has to do with the disclosure and communication of environmental, social, and governance (ESG) goals as well as a company's progress towards these goals (Owolabi & Okulenu, 2021; Aniefor, Nduka, Ananwude & Ezeaku, 2021). To cushion the negative effect of these activities on the profit, people and planet, firms try to balance the needs of their stakeholders via corporate responsibilities and report same through sustainability reporting.

Statement of the Problem

Sustainability reporting is a shift from corporate main objective of profit maximization, to an all-inclusive approach to the environment, integrating accounting and reporting of social costs, environmental costs as well as economic issues, the elements which business has preferred to overlook. This assertion is based on the premise that sustainable reporting, also known as triple bottom line accounting does not only focus on organizational profitability but also the contributions of an organization to its host environment (corporate social responsibility) as well as the management of its environment.

Reporting sustainability activities of firms affects the reputation and performance of companies undertaking these activities. By disclosing sustainability performance, the company discloses financial information and non-financial information, enabling companies to more transparently communicate with the public about their business activities and other performance

aspects. Sustainability reporting can boost financial performance through innovation, operational efficiencies, risk management and stakeholder engagement. Sustainability reporting has drawn much attention across the globe and even Nigeria in particular.

Business wise, the challenge facing companies is how to remain sustainable and consistent in operations considering the complexities of operations and huge costs of environmental and social externalities in oil industry. The overall objective of any organization is to consistently grow and survive on a long term basis. In recent time, the stakeholders have become more and more concerned on the cost implications of environmental and social liabilities to the firms' performance, hence their desire for firms' compliance to global business footprints on sustainable practices which has become a major policy in most firms' boardroom discussions vis-à-vis transparency, Undefined accountability, reliability, governance issues and sustainability disclosure requirements in the annual reports is a critical issue. The absence of mandatory reporting and acceptable accounting framework for sustainability reporting is part of the obvious challenges facing organizations in Nigeria.

Objectives of the Study

The general objective of the study is to examine holistic integration of ESG financial report framework and profitability of oil and gas firms in Nigeria. The specific objectives of the study were as follow:

1. Determine the impact of environmental financial report on profitability of firms in Nigeria.

2. Examine the effect of social financial report on profitability of firms in Nigeria.

3. Examine the effect of governance financial report on profitability of firms in Nigeria.

2. LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Sustainability Reporting

Sustainability reporting refers to firms disclosing non-financial information about environmental, social, and governance (ESG) aspects. It strives to present a full view of a company's sustainability effects and performance (Adegbayibi, Adu & Oyedokun, 2024). The sustainability report goes beyond standard financial reporting by giving non-financial information on environmental, social, and governance (ESG) aspects. This contains information on environmental and social implications, governance challenges, human rights, supply chain management, and diversity (Adekanmi, 2022). It is intended to give a more comprehensive assessment of a company's performance and consequences by considering non-financial aspects.

Sustainability reporting is the activity of measuring, revealing, and holding internal and external stakeholders responsible for corporate performance toward sustainable development objectives. Abosede (2022) views it as participating in the evaluation, transparency, and responsibility to internal and external stakeholders for the overall performance of the firm. Sustainability reporting is a means by which companies disclose information about their environmental, social, and governance (ESG) performance and impacts (Shaban & Barakat, 2023). It is an increasingly important aspect of corporate transparency and accountability, as investors, consumers, and other stakeholders increasingly demand to know more about a company‘s non-financial performance (Adams & Abhayawansa, 2022; Andrian & Pangestu, 2022; Ekwunife, Nduka & Ogini, 2022).

ESG investment (sustainable or socially responsible investment) is an investment strategy for investors who consider firms'

attitudes toward environmental, social, and corporate governance factors, such as policies on climate change and human rights in seeking to earn higher returns and implement portfolio allocation strategies (Sariyer & Tas¸kın, 2022). ESG investment has gained attention from investors and policy makers and has shown significant growth in the past few decades. The increase in sustainable investment indicates that the trend toward ESG portfolios has risen despite the pandemic. This trend suggests that ESG portfolios are considered safe instruments even in periods of turmoil.

The pandemic triggered interest by investors in the ESG aspects of companies during this period of uncertainty (Pastor & Vorsatz, 2020). Sustainability indexes play a significant role in guiding investors about their ESG aspects (Arribas et al., 2021; Nduka, Ananwude, & Osakwe, 2019). ESG indexes consider the sustainability approaches of the firms in terms of their three pillars: environmental, social, and governance. The environmental pillar considers the attitudes and practices of the firms toward environmental issues such as climate change, air and water pollution, deforestation, and biodiversity. Thus, this part of the index grades firm activities related to energy consumption, energy efficiency, carbon and hazardous gas emissions, waste, water, and resource management. The social pillar is related to the firms' policies associated with human rights protection, workplace and product safety, labor standards, gender policies, and public health issues (Sariyer & Tas¸kın, 2022; Monogbe, Omotayo, Achugbu & Nduka, 2016).

The governance pillar of the index concerns factors related to the good governance of firms, such as board independence, protection of shareholder rights, control and monitoring activities, anticompetitive procedures, and compliance with laws and regulations. Many studies associate ESG ratings with the firms' responses to environmental and social aspects such as corporate social performance (Drempetic et al., 2020). ESG rating agencies evaluate the ESG performance of firms by demanding data on hundreds of criteria. Despite the popularity of the ESG ratings in evaluating sustainability performance, different rating agencies give conflicting ratings. Some firms indexed in ESG indexes are involved in scandals, which demonstrate unsustainable practices (Arribas et al., 2021; Ogunewe, Ananwude & Nduka, 2020).

Arribas et al. (2019) highlight many irresponsible behaviors by firms listed in the Dow Jones Sustainability Index. Even though the overall ESG Ratings are considered for sustainability practices, it is clear that firms follow environmental, social, and governance criteria to different degrees. Adams and Abhayawansa (2022) stress that the pandemic caused the social aspects to be under scrutiny and offered a motivation for reevaluating environmental factors. Keeping that in mind, investors should consider firms in sustainability indexes as different actors and make their investment decisions by considering the firms' different approaches toward these three pillars.

2.1.2 Profitability

Profitability is one of the main objectives of a business organization. Profit in this sense could be either accounting profit which refers to the excess of income over expenses for a particular period or economic benefit which in addition to the former also incorporates opportunity cost or forgone alternative of the business (Hofstrand, 2009). A firm's profitability is an indication of how efficiently the firm's resources are managed, and so it is of particular interest to several stakeholders (Nwude, 2004; Nduka, Atueyi, Osakwe & Mbanefo, 2021). Previous

research studies have demonstrated that sustainability reporting affects a firm's profitability. Still, some firms are not sufficiently convinced that sustainability reporting can affect profit positively. Some firms reluctantly report on their sustainable activities to show compliance with regulation while others consider it is a waste of resources.

A research carried out by Laskar (2019) found out that the association between profitability and sustainability reporting is positive and significant with South Korean firms but the Indian firms, it was negative. The further finding indicates that the relative impact of sustainability reporting is found to be significantly more in South Korea as compared with India. Considerable data abound which show that companies which do not act sustainably perform considerably worse than those who are doing so (Nordea Equity, 2017). A GRI study of 2600 executives and managers from companies around the world revealed that the percentage of companies reporting profit from the implementation of sustainability increased from 23% to 37% in one year. The finding also showed that the degree to which a company incorporates sustainability concerns into its business model correlates with an increase in profit.

2.2 Theoretical Framework

Stakeholder theory

Environmental accounting practice in this study is rooted in the stakeholder theory propounded by Richard Edward Freeman in 1984. Stakeholder theory has both an ethical (moral) or normative branch and a positive (managerial) branch. The moral (normative) perspective of Stakeholder Theory argues that all stakeholders have the right to be treated fairly by an organization, and the issues of stakeholder power are not directly relevant. Regardless of whether stakeholder management leads to improved financial performance, managers should manage the organization for the benefit of all stakeholders. One definition of stakeholders is provided by Freeman and Reed: Any identifiable group or individual who can affect the achievement of an organization's objectives is affected by the achievement of an organization's objectives.

Clearly, many people can be classified as stakeholders based on the above definition, for example, shareholder, creditors, government, media, employees, employees' families, local communities, local charities, future generations, and so on. Within the ethical (moral) or normative perspective of Stakeholder Theory, all stakeholder have certain minimum rights that must not be violated. It can be acknowledged that this perspective can be extended to a notion that all stakeholders also have a right to be provided with information about how the organization is impacting on them, perhaps through pollution, community sponsorship, provision of employment, safety initiatives, and so on, even if they choose not to use the information, and even if they can not directly have an impact on the survival of the organization.

For a business to achieve its objectives, it should take into account the interest of its stakeholders in the decisions it makes, and the in manner in which it conducts its operations. This is the central argument of the stakeholder's theory (Donaldson & Preston 1995). To be successful, a firm seeking to maximise the wealth of its shareholders as well as achieve its objective and goals, must consider the interest of its stakeholders. An ethically oriented firm would engage in decision-making processes that are favourable to its stakeholders. When the actions of a firm are ethically motivated and allows for the interests of the

stakeholders in its environment, it is most likely that the actors in the environment in which the business operates will perceive the business as socially responsible.

The stakeholders of a business have one expectation or the other from the entity. A socially responsible business will seek to protect the interest of its stakeholders by seeking to satisfy the interest of both internal stakeholders (such as shareholders and employees) and external stakeholders (such as creditors, suppliers, host community, and the government). Managers must therefore consider how their activities will affect not just the shareholders but all other key stakeholders of the business. This is important as these stakeholder groups can enhance or frustrate an entity from achieving its goals. Put briefly, the stakeholder theory posits that there are many stakeholders in the environment in which a firm operates. Ignoring the interests of these stakeholders will imperil the performance of the business. Relying on the stakeholder perspective some studies have documented a positive relationship between CSR activities and financial performance (Ashrat, Kham & Tariq, 2017; Kaskeen, 2017; Manokaran et al., 2018). Summing from all the views, this study is, therefore, anchored on stakeholder's theory.

2.3 Empirical Literature

Onwubiko, et al. (2025) examined the effect of sustainability reporting on financial performance of oil and gas companies in Nigeria. The objectives were to find out the effect of social disclosure on return on equity of listed oil and gas firms in Nigeria; determine the effect of corporate governance disclosure on their return on equity; and ascertain the impact of environmental disclosure on their return on equity. Ex-post facto design was adopted. The independent variable of the study is sustainability accounting proxied by environment reporting (investment in environmental and green projects), social reporting (investment in social responsibility) and governance reporting (board size). The dependent variable of the study is firm's performance measured by return on equity. Data were extracted from the comprehensive income statements and financial position of five listed oil and gas companies which are Ardova Nigeria Plc, Oando Plc, Conoil Plc, MRS Plc and Totalenergies covering the period from 2011 to 2024. The data were subjected to unit root test, co-integration, and multiple linear regressions. Findings revealed that social responsibility disclosure has negative but significant effect on return on equity of listed oil and gas firms in Nigeria. Corporate governance disclosure has positive and significant effect on return on equity of listed oil and gas firms in Nigeria. Environmental disclosure has positive but no significant effect on return on equity of listed oil and gas firms in Nigeria. Evidence provided a conclusion that sustainability reporting actually led to improved financial performance of the oil and gas companies in Nigeria. Based on the findings, it was recommended that: the management and stakeholders of the oil and gas companies in Nigeria such continue to be socially responsible. The board size should be maintained by the stakeholders of the companies.

Oyegunle-Esimaje, (2024) investigated the impact of ESG score on the Corporate financial performance of non-financial firms (NFFs) listed in the Nigerian exchange group. In this study disclosure of ESG is considered and quantified using sentence counting (ESG Score) and financial performance is measured by Return on Assets (ROA), Return on Equity (ROE) and Book Value to Equity (BTE) which is a combination of accounting and market-based variables. Findings of the study revealed that the relationship between

ESG score and Corporate financial performance in Nigerian's non-financial firms (NFFs) has a wide landscape. The positive correlations observed between ESG score and ROA/ROE signified the potential for favorable financial outcomes associated with heightened ESG engagement. However, the unexpected negative association between ESG score and BTE introduced complexity to the relationship, indicating a potential trade-off with financial leverage. The implication of these findings is that Nigerian's non-financial firms need to navigate the incorporation of ESG initiatives judiciously. While reaping potential benefits in terms of ROA and ROE, NFFs should carefully consider the impact it has on financial leverage. This necessitates a strategic approach that balances the social responsibility agenda with the optimization of financial structures. The study recommends NFFs to establish mechanisms for continuous monitoring and evaluation of the impact of ESG prac- tices on various financial indicators. This involves regularly assessing the outcomes of ESG initiatives and making adjustments to ensure they are not mere diversion of companies' resources.

Yeye and Egbunike, (2023) examined the impact of environmental, social, and governance disclosure on firm value. This study empirically examines the impact of profitability on the relationship between ESG and firm value. This study uses a panel dataset of 12 industrial goods manufacturing firms listed during the 2014-2020 period. The direct effects were tested using an FEM and the Two-Stage Least Squares was used to account for the endogeneity problem. This study finds a positive effect of ESG disclosures on firm value. The coefficients of ESG in the FEM and 2SLS results were not significant. The interaction between ROA and ESG also showed higher coefficients that were not statistically significant. The empirical analysis was robust to the use of two-stage least squares regression. This study presents evidence from a single sector based on a prior literature review, which may affect the generalizability of the findings to other sectors. This work adds to the broad ESG literature and methodologically extends past results by exploring the moderating influence of profitability. This study has implications for managers and firms that are increasingly desirous of improving their firm performance by presenting a positive image to their stakeholders and how this is linked to their profitability over time. This study adds new aspects to the broad discussion on ESG and firm value in a developing-country context, which is consistent with the view that profitable firms mainly address ESG issues in such economies.

Mahmut, Guzhan and Korkmaz (2022) examined impact of Environment, Social, Governance (ESG) performance on firm value and profitability. Our large dataset gives us the chance to better conceptualize this impact. Our findings suggest that overall ESG combined score is positively and significantly associated with firm value. Individual Social and Governance scores have a positive and significant relationship while Environment score does not have a significant relationship with firm value. On the other hand, ESG combined score, Environment, Social, and Governance scores have positive and significant relationships with firm profitability. These findings suggest that investing in high ESG performance promises financial return for the firm in terms of both value and profitability.

Ndifon, (2020) examined the implications of Environmental, Social and Governance (ESG) Dimensions of corporate social responsibility (CSR) performance on firms' profitability (Returns on Assets - ROA) and Cash Flows (Cash Flows Per Share - CFPS) for eight (8)

manufacturing firms listed on Nigerian Stock Exchange from 2009 to 2018. The study found that, on average, increased ESG practice is positively associated with firm performance. Environmental and governmental dimensions and practices positively and significantly affect ROA and CFPS, while the Social dimension negatively and significantly affects ROA and CFPS. The study further revealed that the social dimension's negative effect results from investment in community development and philanthropy. It is concluded that overall, high and quality ESG practices improve corporate financial performance in the manufacturing industry in Nigeria. Therefore, it was recommended that managers of manufacturing firms invest in higher environmental, social and Governance performance to reap higher profitability and cash flow performance.

3. METHODOLOGY

This study used ex-post factor research design. The ex-post facto research design was adopted because the variables of the study were collected based on data on past event documented in audited financial report of the selected firms. Data were collected from secondary sources. Data from oil and gas financial reports, corporate and scholarly journals, published books and seminar papers/project. The study made use of the financial performance data which were of interest to this researcher. The population of the study consists of all the thirteen (13) oil & gas firms listed on the floor of the Nigerian Exchange Group (NEG) from 2012 to 31st December 2022. The oil & gas includes: capital Oil, Mrs Oil, Oand Oil, Total Oil Mobil Oil, Capital Oil Conoil, Eterna Oil, Forte oil Seplat Oil. Japal oil, Rakunity oil, Ardova oil

The researchers using purposive sampling choose five (5) oil and gas firm as a sample size for this study. Purposive sampling is a form of non-probability sampling in which researchers rely on their own judgment when choosing members of the population to participate in their surveys. Data were collected from the published financial statements of the five (5) selected oil and gas firm (Oand Oil, Total Oil, Mobil Oil, Capital Oil and Conoil,) for an eleven (11) years period spanning from 2012-2022, using purposive sampling method (that is selected oil and gas firms that filed their annual financial statements with NEG from 20122-2022 without missing any year was selected for this study).

Model Specification

The model adapted for this study is a modification of the Mahmut, Guzhan and Korkmaz (2022) examined impact of Environment, Social, Governance (ESG) performance on firm value and profitability. Therefore, the functional form of the model for the study becomes;

ROA =f (EFR, SFR,GFR,) ---------- (1)

Where

ROA = Return on Assets
EFR = Environmental financial report
SFR = Social financial report
GFR = Governance financial report

The implicit form of the model is expressed

$ROA = \beta 0 + \beta_1 EFR + \beta_2 SFR + \beta_3 GFR + \mu$---------- (2)

β_0 and μ are the constant and error term respectively while β_1, β_2, and β_3, are the coefficients of ESG financial report on the financial performance of oil and gas firms in Nigeria.

Decision Rule

Reject the null hypothesis if the probability of the F-statistic is less than the critical value of 0.05 for the fixed effect model for each of the hypothesis.

Measurement of Variables

TABLE 1: Determinants of Liquidity Management and Banks performance

Determinant	Variables	Notations	Measurement	Authority
Dependent variables:	Return on Asset	ROA	Profit after Tax/Total Asset	Setiawan & Gestanti, 2022
Independent variables:	Environmental financial report	EFR	'1' if disclosed, '0'otherwise	Zhang & Lucey (2022);
	Social financial report	SFR	'1' if disclosed, '0'otherwise	Rahi, Akter, & Johansson (2022)
	Governance financial report	GFR	'1' if disclosed, '0'otherwise	Zhang & Lucey (2022);

4. RESULTS AND DISCUSSION OF FINDINGS

Descriptive Analysis

The descriptive statistics for the dependent and independent variables used in this study were presented in table 4.1 below:

Table 4.1: Summary of descriptive statistics for the variables employed in this study:

	ROA	EFR	SFR	GFR
Mean	0.181417	0.575000	0.566667	0.641667
Median	0.135000	1.000000	1.000000	1.000000
Maximum	0.660000	1.000000	1.000000	1.000000
Minimum	0.010000	0.000000	0.000000	0.000000
Std. Dev.	0.161642	0.496416	0.497613	0.481521
Skewness	1.140988	-0.303433	-0.269069	-0.590880
Kurtosis	4.019941	1.092072	1.072398	1.349139
Jarque-Bera	31.23847	20.04239	20.02621	20.60949
Probability	0.000000	0.000044	0.000045	0.000033

Sum	21.77000	69.00000	68.00000	77.00000
Sum Sq. Dev.	3.109259	29.32500	29.46667	27.59167
Observations	120	120	120	120

Source: Researchers' computation (2025) from E-view 9

*Note: *1% level of significance **5% level of significance*

The table above indicates that the mean of Return on assets (ROA) is 18% with standard deviation of 16% the minimum and maximum values of 66% and 01% respectively. The mean value of Environmental Financial Report (EFR) is 57% with standard deviation of 49% the minimum and maximum values of 1% and 0% respectively. The mean value of Social Financial Report (SFR) is 56% with standard deviation of 49%, the minimum and maximum values of 1% and 0% respectively. Governance Financial Report (GFR) mean value is 6.4% with standard deviation of 48%, the minimum and maximum values of 1% and 0% respectively.

These results suggest that the data are not widely dispersed from the mean because the standard deviations of all the variables are less than the mean values. Also, the skewness value of all the variables is not close to zero, it means that the distribution of the variables is symmetric in nature. The Kurtosis values of all the variables is also not closer to 3, it indicates that the shape is a normal distribution. The P-value of Jarque-Bera test of all the variables is less than 5%, However, Shao (2003) submits that normality of data does not in any way affect the inferential statistics estimate to the BLUE properties. (Best, Linear, Unbiased, Estimate)

Correlation Analysis

A square matrix that displays the correlation coefficients between two variables is called a correlation matrix. The strength and direction of a linear relationship between two variables are measured by correlation coefficients. Frequently used in multivariate analysis and statistics, a correlation matrix looks at the relationships between several variables. It is possible to assess the link between two variables by using a correlation matrix: A relationship is strong if the relationship value is 1. The relationship is neutral if the relationship value is 0. In the event that the relationship's value is -1, it is weak or negative.Therefore, in examining the association among the variables, we employed the Pearson correlation coefficient (correlation matrix) and the results are presented in the table 4.2 below:

Table 4.2 Result of Pearson Correlation Matrix

	ROA	EFR	SFR	GFR
ROA	1.000000	-0.015473	0.083962	-0.067919
EFR	-0.015473	1.000000	-0.003402	-0.044823
SFR	0.083962	-0.003402	1.000000	-0.022211
GFR	-0.067919	-0.044823	-0.022211	1.000000

Sources: E-VIEW OUTPUT 2025

Return on assets value is positively connected with one factors, social financial report but negatively correlated with environmental financial report and

governance financial report according to the correlation matrix table. The aforementioned findings demonstrate that the return on assets (ROA/EFR=-0.01) and Environmental financial report (EFR) are strongly correlated with return on assets. Additionally, there is a high and positive correlation (ROA/SER = -0.08) between thin Return on assets' and social financial reporting. There is a significant and positive correlation between Return on assets' value and governance financial report (ROA & GFR) = 0.06.

Environmental financial report and governance financial report is strongly and negatively correlated (EFR/GFR=--0.01/-0.04). Additionally, a substantial and positive correlation was identified between SER and GFR (0.08/0.02). None of the factors, nevertheless, was discovered to be greater than 0.80. That is, no two exploratory variables had a perfect correlation. The highest correlation is between two variables which are highly correlated with (ROA/SFR=-0.08) which indicate that multi co linearity is not a serious problem that would distort the regression result in the model used for analysis. A close look at the value of the Pearson correlation coefficient results revealed that all the variables are strongly associated with return on assets.

Therefore, in checking for multi-collinearity problem, the study noticed from the correlation table above that no two explanatory variables were perfectly correlated and thereby ruled out the case of having an outlier. This indicates the absence of multi-collinearity problem in the model used for the analysis. This also justifies the use of the Panel Least Square (PLS).

Fixed and Random Effect Test (Hausman Test)

To choose between these two regressions models, Hausman test can be run to examine whether the difference between the random effects regression and the fixed effects regression is zero. In other words, H0: random effect is preferred. Based on the present analysis, Hi was strongly rejected (p-value= 0.000) which means that the random effects model was preferred.

Table 4.3 Fixed and Random Effect Test

Result of Hausman test in Table 4.4 revealed high Chi-Sq. Statistic value to the tune of 0.795106, alongside p-value of 0.8506. Probability value is below 0.05 ($p > 0.05$). Findings revealed a positive and statistically significant result which implies that random effect estimation result is the most efficient and consistent estimation result that can track true nature of the nexus between integration of ESG financial report and return on assets ' value of oil and gas firms. Based on the results of post estimation test carried out, it is established that random effect estimator is appropriate.

Correlated Random Effects - Hausman Test
Equation: Untitled
Test period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	0.795106	3	0.8506

** WARNING: estimated period random effects variance is zero.

Period random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
EFR	0.002146	-0.005924	0.000129	0.4777
SFR	0.034276	0.026771	0.000189	0.5855
GFR	-0.016826	-0.022459	0.000164	0.6601

In order to examine the relationship between the dependent variable (return on assets' value) and the independent variables (EFR, SFR, GFR) and to test the formulated hypothesis, we employed a Panel Regression Analysis since the data had both time series (2012-2023) and longitudinal properties (10 quoted companies) our analysis is presented in table 4.3 below

$ROA_{it} = \beta_0+\beta_1 EFR_{1t} +\beta_2 SFR_{1t} +\beta_3 GFR_{1t} + \varepsilon$……1

Table 4.4: Robust Random Effect Model

Dependent Variable: ROA
Method: Panel EGLS (Cross-section random effects)
Date: 10/19/25 Time: 02:32
Sample: 2012 2023
Periods included: 12
Cross-sections included: 10
Total panel (balanced) observations: 120
Wallace and Hussain estimator of component variances
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.203688	0.031283	6.511225	0.0000
EFR	0.216543	0.017531	0.943612	0.3473
SFR	0.409261	0.016675	2.555393	0.0097
GFR	0.311706	0.015741	0.743662	0.4586

	Effects Specification	
	S.D.	Rho
Cross-section random	0.137631	0.6769
Idiosyncratic random	0.095079	0.3231

	Weighted Statistics		
R-squared	0.712703	Mean dependent var	0.035480
Adjusted R-squared	0.702831	S.D. dependent var	0.093391
S.E. of regression	0.093988	Sum squared resid	1.024719
F-statistic	9.497493	Durbin-Watson stat	1.884798

Prob(F-statistic)	0.000037		
	Unweighted Statistics		
R-squared	0.702875	Mean dependent var	0.181417
Sum squared resid	3.118200	Durbin-Watson stat	1.356492

Source: Author's Computation Using E-views 9 (2025)

Discussion Of Findings

A weighted adjusted R-squared value of 0.702831 and a weighted R-squared value of 0.712703 were given in Table 4.4. This graph indicates that around 70% of the variances in the tested companies' performance might be attributed to the integration of ESG financial report used in the study. The probability value of 0.000037 and the F-statistic of 9.497493 show how well the regression model describes the data. Once more, the model shows that it is still very statistically significant even at 5% levels. In the meantime, the Durbin Watson estimate of 1.884798 shows that autocorrelation has little impact on the model. This suggests that the model is fit for prediction. It is on these bases that, each of the research hypothesis postulated in earlier chapter of this research were tested in the next section of this chapter. A' priori criteria which is used to determine the existing accounting theories and indicates the sign of the accounting parameter under consideration.

The coefficient of regression (0.216543) indicates that environmental financial report has positive sign on performance. This indicates that a unit increase in environmental financial report will lead to about 2 percent increase in the performance of oil and gas firms.

Furthermore from the coefficient of regression (0.409261) indicates that social financial report has positive sign on performance. This indicates that a unit increase in social financial report will lead to about 4 percent increase in the performance of oil and gas firms

From the coefficient table above, it was observe that governance financial report has a positive sign given its value as 0.31106, this implies that a unit increase in governance financial report will increase the performance of oil and gas firms by 3%. This is in line with apriori expectation.

T-statistics, this is the measure used to determine the individual statistical significance of the variables in the model. From the model it was obtained that the environmental financial report has a positive and insignificant effect (t-0.943612, p=0.3473) on performance, this further implies that environmental financial report has a persistent positive effect on performance of oil and gas firms in Nigeria

Going further it was observed from the regression table above that social financial report has a positive significant effect (t, 2.555393, p=0.0097) on performance of oil and gas firms in Nigeria, this further implies that social financial report has a persistent positive effect on performance of oil and gas firms in Nigeria

Moreso, it was observed from the regression table above that governance financial report has a positive and insignificant effect (t-0.743662, p=0.4586) on performance of oil and gas firms in Nigeria, this further implies that governance financial report has a persistent postive and insignificant effect on performance of oil and gas firms in Nigeria

Hypotheses Testing

Hypothesis One

Ho_1: Environmental financial report has no significant effect on performance of oil and gas in Nigeria.

Environmental financial report from our regression result in table 4.4 above, we found that the value of **Environmental financial report** is 0.943612, while its probability is 0.3473. This shows that **Environmental financial report** is positively insignificant. Furthermore, since its probability (0.3473) is greater than 0.05% level of significance, we reject the alternative hypothesis (H1) and accept null hypothesis (H0) which says that Environmental financial report has no significant effect on performance of oil and gas in Nigeria.

Hypothesis Two

Ho_1: Social financial report has no significant effect on performance of oil and gas in Nigeria

From table 4.4 above, we found out that computed value for Social financial report is 2.555393 while it's probability is 0.0097. This shows that the Social financial report is positive and has significant effect at 5% level of significant. Based on this analysis, we reject (H0) and accept (Hi), which implies that Social financial report has significant effect on performance of oil and gas in Nigeria

Hypothesis Three

Ho_1: Governance financial report on has no significant effect on performance of oil and gas in Nigeria

From table 4.4 above, we found out that computed value for Governance financial report is -0.743662, while its probability is 0.4586. This shows that the Governance financial report is statistically significant at 5% level of significant. Based on this analysis, we accept (H0) and reject (Hi), which implies that Governance financial report on has no significant effect on performance of oil and gas in Nigeria

5. CONCLUSION

This study investigated the holistic integration of Environmental Financial Reporting (EFR), Social Financial Reporting (SFR), and Governance Financial Reporting (GFR) on the profitability of oil and gas firms in Nigeria using a panel data model spanning from 2012 to 2023. Profitability was measured through Return on Assets (ROA), while the explanatory variables represented the three pillars of sustainability reporting. The empirical findings revealed that environmental financial reporting and governance financial reporting had positive but statistically insignificant effects on profitability, whereas social financial reporting exerted a positive and statistically significant effect on profitability.

Overall, the study concludes that while oil and gas firms in Nigeria are increasingly adopting ESG-related disclosures, the integration is still fragmented, with the social component being the only dimension that significantly drives profitability. Thus, the holistic adoption of ESG reporting remains a challenge in the sector. This finding aligns with global sustainability literature, which emphasizes that balanced integration of environmental, social, and governance dimensions is essential for long-term corporate value creation and sustainable performance Based on the empirical findings, the following recommendations are made:

1. Oil and gas firms should adopt environmental reporting not merely as a

regulatory requirement but as a strategic investment tool. Management should integrate environmental risk assessment, pollution control, and energy efficiency initiatives into financial planning.

2. Firms should institutionalize social responsibility practices that build trust and goodwill among key stakeholders. Investments in community engagement, local content development, employee capacity building, and workplace safety should be prioritized.

3. Firms should ensure board independence, gender diversity, ethical transparency, and effective internal control systems.

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