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Cashflow Yield Implications of Quadruple Bottom Line Performance: Evidence from Listed Oil Marketers in Nigeria

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Abstract: Listed oil marketing firms in Nigeria operate in a highly regulated and socially sensitive environment, yet disclosure practices across economic, environmental, social, and governance dimensions remain uneven and largely fragmented. This inconsistency limits stakeholders' ability to properly assess firms' sustainability posture and obscures the extent to which Quadruple Bottom Line disclosure contributes to firms' cashflow yield. Hence, this study examined the effect of quadruple bottom line disclosure on the cashflow yield of listed oil marketing firms in Nigeria. An *ex-post facto* research design was adopted, covering all oil marketing firms listed on the Nigerian Exchange Group as at 31 December 2024, from which seven firms were purposively selected based on consistent listing status and availability of annual reports between 2015 and 2024. The study relied exclusively on secondary data obtained from the published annual reports and financial statements of the sampled firms. Hypotheses were tested using panel Estimated Generalised Least Squares (EGLS) employing cross section weights to address cross sectional dependence and White period standard errors and covariance to correct for heteroskedasticity. The findings revealed that: economic disclosure positively and significantly affects cashflow yield ($\beta = 0.759$, $p = 0.020$); environmental disclosure has a positive but non-significant effect on cashflow yield ($\beta = 0.223$, $p = 0.212$); social disclosure positively and significantly affects cashflow yield ($\beta = 0.163$, $p = 0.000$); governance disclosure positively and significantly affects cashflow yield ($\beta = 0.684$, $p = 0.000$). The study concluded that comprehensive and balanced disclosure across economic, environmental, social, and governance dimensions enhances cashflow performance and recommended stronger sustainability reporting practices among listed oil marketing firms. Hence, sustainability officers and corporate social responsibility teams should enhance the depth and clarity of environmental reporting, providing measurable outcomes and linking initiatives to operational performance to better demonstrate the value of environmental practices.

Keywords: Cashflow Yield, Quadruple Bottom Line, Oil Marketers

1.0 Introduction

The oil marketing industry in Nigeria has long been a major contributor to the nation's economic development, playing a critical role in energy supply, employment, and government revenue. This industry operates in a complex environment characterized by fluctuating oil prices, regulatory oversight, and intense competition among firms (Adedokun, 2026). Listed oil marketing companies in Nigeria are particularly under pressure to balance profitability with transparency, accountability, and responsible corporate behavior (Tonye & Boubai, 2025). Over the past decade, stakeholders including investors, regulators, and the public have increasingly demanded that firms not only deliver financial returns but also demonstrate social responsibility and environmental stewardship. As a result, companies are being evaluated not just on profit performance but also on their broader impact on society and the environment. This evolving business environment requires firms to adopt comprehensive reporting frameworks that reflect not only economic outcomes but also social, environmental, and governance performance (Onwubiko et al., 2025; Muomaife et al., 2025). Understanding these dynamics is essential because the ability of firms to generate sustainable cashflow is closely linked to their reputation, governance practices, and overall commitment to responsible business conduct.

Quadruple bottom line disclosure has emerged as a valuable framework for measuring corporate performance across four dimensions: economic, environmental, social, and governance (Manta et al., 2020). Each dimension provides critical information on how a firm manages its resources, engages with society, protects the environment, and maintains ethical standards. In today's business environment, firms are under constant scrutiny from shareholders, regulators, and consumers who increasingly prefer companies with strong sustainability practices. By providing detailed disclosures across these four dimensions, companies signal transparency, accountability, and long-term strategic planning, which can enhance investor confidence and market valuation (Oktar et al., 2025). Accordint to Taylor (2023), cashflow yield, on the other hand, is a key financial metric that measures the cash generated by a company relative to its market value, providing insight into liquidity, financial stability, and the ability to meet operational and investment needs. The relevance of cashflow yield has grown as investors and analysts seek indicators that go beyond traditional profit measures to assess financial resilience (Maguire, 2019). The integration of quadruple bottom line disclosures into corporate reporting can influence perceptions of risk, efficiency, and sustainability, which in turn can affect the cashflow yield. Firms that are diligent in their disclosures are more likely to attract investment, maintain access to financing, and achieve operational efficiency, all of which contribute to improved cashflow generation. Consequently, understanding the relationship between quadruple bottom line disclosure and cashflow yield is crucial for firms striving to balance financial performance with social and environmental responsibilities in a competitive and socially conscious market.

The link between quadruple bottom line disclosure and cashflow yield can be understood through several mechanisms. First, economic disclosure ensures that investors and stakeholders are aware of the firm's financial strategies, revenue streams, and investment decisions (Nogueira et al., 2024). When economic performance is communicated clearly, firms are more likely to maintain investor trust, resulting in stable capital inflows and a positive impact on cashflow yield. Second, environmental disclosure can reduce operational and reputational risks by highlighting efforts to manage pollution, waste, and energy consumption (Dincer et al., 2023; Elom et al., 2025). Firms that adopt environmentally responsible practices often experience lower regulatory fines and operational disruptions, which improves liquidity and cashflow stability. Third, social disclosure, including information about employee welfare, community engagement, and corporate social responsibility initiatives, can strengthen relationships with key stakeholders (Adegboyegun, 2025). Positive social engagement can lead to customer loyalty, enhanced brand reputation, and smoother labor relations, all of which contribute to consistent cashflow. Finally, governance disclosure, which includes board structure, ethical policies, and transparency measures, fosters accountability and reduces the likelihood of financial mismanagement (Nworie & Orji-Okafor, 2024). Companies with strong governance practices are often better positioned to make strategic decisions that optimize cashflow.

Companies in the oil marketing sector are expected to balance financial performance with responsible social, environmental, and governance practices. Firms that provide clear, comprehensive information across economic, environmental, social, and governance dimensions enable investors, regulators, and other stakeholders to make informed decisions. When companies maintain transparency and accountability in their reporting, they can attract investment, maintain stakeholder trust, and ensure steady cashflow, which supports growth and stability (Govinnage, 2025). Effective disclosure also allows firms to demonstrate commitment to sustainable practices while showing how these practices contribute to long-term financial health. In this context, reporting across all four dimensions should support consistent cash generation, reduce uncertainties, and strengthen relationships with key stakeholders.

In practice, however, many listed oil marketing firms in Nigeria provide incomplete or inconsistent information regarding their economic, social, environmental, and governance activities (Adedokun, 2026). Financial reports often focus on profitability while providing limited details on environmental initiatives, social responsibility programs, or governance structures. Disclosure practices are not standardized, and many firms lack clear frameworks for reporting on sustainability or ethical practices. This situation makes it difficult for investors and other stakeholders to assess the full range of risks and opportunities associated with the firms. Without adequate reporting across all four dimensions, the true performance and sustainability of these companies are not fully visible, leaving gaps in understanding that can affect investment decisions and financial planning.

The consequences of these limitations are significant. Incomplete or inconsistent disclosure reduces stakeholder confidence and can limit access to capital, which affects liquidity and cashflow stability. Investors may perceive higher risks and demand higher returns, placing additional pressure on firms' financial performance. Operational inefficiencies, environmental penalties, and social disputes may go unnoticed or poorly managed due to lack of transparency, further straining resources (Etim et al., 2026). Over time, the failure to provide comprehensive information can hinder the growth of firms, weaken their market position, and reduce their ability to generate sustainable cashflow. For the oil marketing sector in Nigeria, these gaps highlight the need to examine how comprehensive reporting across the quadruple bottom line influences cashflow yield and whether stronger disclosure practices can improve both stakeholder trust and financial outcomes.

Although existing empirical studies provide substantial evidence on the relationship between sustainability disclosure and firm performance, several important gaps remain. Studies such as Pérez and Sevillano (2025), Dincer et al. (2023), Sharma et al. (2022), and Pham et al. (2022) largely focused on conventional financial performance indicators such as ROA, ROE, market value, or efficiency, with limited attention to cashflow-based measures that better reflect firms' liquidity and financial resilience. In the Nigerian context, Adegboyegun (2025), Akinleye and Owoniya (2024), and Nworie and Orji-Okafor (2024) examined sustainability, triple bottom line, or quadruple bottom line disclosures but concentrated on manufacturing or consumer goods firms, leaving the oil marketing sector underexplored despite its regulatory sensitivity and environmental exposure. Furthermore, studies by Nogueira et al. (2024) and Nogueira et al. (2024) emphasized conceptual models, bibliometric reviews, or large cross-country samples, which limit sector-specific insights relevant to emerging markets. Prior works also relied heavily on OLS, GMM, random effects, or SEM approaches, with little consideration for cross-sectional dependence and heteroskedasticity inherent in industry-based panel data. Additionally, Manta et al. (2020) isolated social disclosure without integrating the full Quadruple Bottom Line framework. Consequently, there is limited empirical evidence on how economic, environmental, social, and governance disclosures jointly affect cashflow yield within Nigeria's listed oil marketing firms, creating a clear gap that this study seeks to address using a robust panel EGLS approach. Hence, the main objective of the study is to examine the effect of Quadruple Bottom Line disclosure on the cashflow yield of listed oil marketing firms in Nigeria. The specific objectives are to assess the effect of economic disclosure, environmental disclosure, social disclosure and governance disclosure on the cashflow yield of listed oil marketing firms in Nigeria.

2.0 Literature Review

2.1 Conceptual Issues

2.1.1 Economic Disclosure and Cashflow Yield

Economic disclosure remains a key determinant of firm financial performance, directly influencing stakeholders' perception of profitability and sustainability. Nogueira et al. (2024) demonstrated that the economic dimension of the triple bottom line positively affects value creation and the long-term continuity of firms in Portugal, showing that transparent reporting on financial strategies signals stability to investors. Similarly, Pérez and Sevillano (2025) found that higher sustainability scores, which include economic performance indicators such as revenue, profits, and investment strategies, are associated with stronger returns on assets and equity, indicating that firms integrating economic information into broader sustainability frameworks achieve better financial outcomes. In contrast, Adegboyegun (2025) observed that excessive focus on short-term economic disclosure negatively affected market valuation in Nigerian manufacturing firms, highlighting the risk that overemphasis on immediate profits may create skepticism among investors about long-term strategy. These findings collectively suggest that economic disclosure can enhance cashflow yield by attracting investment and improving resource allocation when embedded within a comprehensive reporting framework. For listed oil marketing firms in Nigeria, this implies that balancing financial transparency with social, environmental, and governance reporting is crucial to maintain investor confidence and sustainable cashflow generation.

2.1.2 Environmental Disclosure and Cashflow Yield

Environmental disclosure provides crucial information about a firm's ecological practices and operational risks, which can directly impact cashflow stability. Adegboyegun (2025) reported that environmental reporting positively influenced share prices among Nigerian firms, signaling to investors that companies are committed to managing long-term ecological risks. Dincer et al. (2023) observed that firms with higher environmental impacts benefited from improved short-term financial performance when sustainability reporting was emphasized, demonstrating the value of transparent ecological disclosures even in developing country contexts. Pham et al. (2022) further found that environmental ESG investments enhance operational efficiency and attract investor attention in environmentally sensitive industries, suggesting that firms demonstrating responsible environmental practices can achieve both reputational and financial benefits. Nogueira et al. (2024) also highlighted that integrating environmental practices within the triple bottom line framework allows firms to address ecological challenges, foster innovation, and strengthen organizational resilience. These studies collectively imply that oil marketing firms in Nigeria that actively disclose environmental initiatives are likely to reduce regulatory penalties, prevent operational disruptions, and improve cashflow yield. By managing ecological risks transparently and consistently, firms can enhance stakeholder trust, secure capital inflows, and maintain liquidity, which are critical for sustaining financial stability in a volatile energy sector.

2.1.3 Social Disclosure and Cashflow Yield

Social disclosure plays a pivotal role in enhancing organizational performance by promoting employee engagement, community relations, and stakeholder confidence. Manta et al. (2020) found that social initiatives, such as policies promoting diversity and equal opportunity, improved employee productivity and organizational reputation among European banks, highlighting the operational benefits of socially responsible practices. Adegboyegun (2025) similarly reported a positive relationship between social reporting and share prices in Nigerian firms, indicating that transparent social engagement signals ethical commitment and long-term stability to the market. Nogueira et al. (2024) emphasized that social aspects of the triple bottom line contribute to organizational resilience, allowing firms to effectively navigate societal expectations and stakeholder demands. Pham et al. (2022) further demonstrated that ESG investments focusing on social factors improve resource efficiency and operational outcomes, particularly in sectors where public perception and community relations are critical. For Nigerian oil marketing firms, comprehensive social disclosure can enhance stakeholder trust, reduce potential conflicts, and promote workforce productivity. These benefits, in turn, support consistent cashflow yield, as positive social engagement strengthens the firm's reputation, encourages customer loyalty, and ensures smoother labor relations. In all, effective social reporting is not only a measure of ethical responsibility but also a strategic tool for sustaining financial performance.

2.1.4 Governance Disclosure and Cashflow Yield

Governance disclosure significantly influences cashflow yield by ensuring accountability, reducing information asymmetry, and fostering investor confidence. Sharma et al. (2022) found that governance pillars of ESG reporting positively affected market value in Gulf Cooperation Council countries, emphasizing the critical role of transparent board structures, ethical policies, and decision-making processes. Akinleye and Owoniya (2024) reported similar findings in Nigeria, showing that governance, credibility, and environmental disclosures collectively improved financial performance among publicly listed firms. Nworie and Orji-Okafor (2024) demonstrated that integrating governance into quadruple bottom line reporting contributed to operational efficiency and cost savings in Nigerian manufacturing firms. Pérez and Sevillano (2025) further highlighted that governance indicators, when combined with economic and sustainability measures, enhance overall business performance by reinforcing strategic oversight and ethical standards. These studies indicate that robust governance disclosure reduces the likelihood of mismanagement, mitigates regulatory risks, and improves resource allocation. For oil marketing firms in Nigeria, strong governance practices and transparent reporting can attract long-term capital, strengthen investor trust, and sustain liquidity. Consequently, governance disclosure is essential for enhancing cashflow yield, as it supports sound decision-making, operational discipline, and sustainable financial outcomes, especially in a sector exposed to regulatory scrutiny and market volatility.

2.2 Theoretical Framework and Development of Research Hypothesis

Legitimacy Theory was first developed in the 1970s by Suchman, with his foundational work in 1995 providing one of the most widely cited frameworks for understanding organizational legitimacy (Mahadeo et al., 2011). The theory emerged from sociological perspectives on organizations and their relationships with society, emphasizing the need for firms to maintain social approval to operate successfully. It builds on earlier concepts of social contract theory, which suggest that organizations exist because society allows them to, provided they conform to societal expectations and norms. Over time, legitimacy theory has become a central framework in accounting and corporate reporting research, particularly in explaining why firms voluntarily disclose information about economic, social, environmental, and governance practices. It provides a basis for understanding the pressures that compel companies to align their actions and communications with the values and norms of stakeholders, regulators, and the broader society in which they operate.

The main postulations of Legitimacy Theory revolve around the idea that organizations continually seek to ensure their actions are perceived as acceptable by society (Nworie et al., 2024). The theory assumes that failure to maintain legitimacy can result in sanctions, loss of public trust, or restrictions on operations. Firms achieve legitimacy by demonstrating conformity to societal norms, values, and expectations, often through reporting and transparency mechanisms. The theory also emphasizes that legitimacy is dynamic, meaning that firms must continually monitor social expectations and adjust their practices accordingly (Hummel & Schlick, 2016). Disclosure across economic, social, environmental, and governance dimensions serves as a key tool for maintaining legitimacy because it communicates responsible and ethical behavior to stakeholders. By aligning corporate actions with social expectations, organizations can secure approval and reduce potential reputational or operational risks.

Legitimacy Theory is directly relevant to this study because it provides a framework for understanding why oil marketing firms in Nigeria engage in quadruple bottom line disclosure and how such disclosure may influence cashflow yield. Firms operating in a highly regulated and socially sensitive sector face pressure from investors, communities, and regulators to demonstrate responsible practices. By disclosing economic, environmental, social, and governance information, these firms signal that they conform to societal norms and expectations, thereby maintaining legitimacy. Maintaining legitimacy can improve stakeholder confidence, attract investment, and facilitate access to financial resources, all of which can enhance cashflow yield. In this way, Legitimacy Theory helps explain the relationship between comprehensive corporate disclosure and financial performance, providing a theoretical foundation for investigating how transparency and accountability contribute to sustainable cashflow generation in the Nigerian oil marketing sector. Hence, in line with the above theoretical postulation, we hypothesise that:

H_1: Economic disclosure has a significant effect on the cashflow yield of listed oil marketing firms in Nigeria.

H_2: Environmental disclosure has a significant effect on the cashflow yield of listed oil marketing firms in Nigeria.

H_3: Social disclosure has a significant effect on the cashflow yield of listed oil marketing firms in Nigeria.

H_4: Governance disclosure has a significant effect on the cashflow yield of listed oil marketing firms in Nigeria.

3.0 Methodology

This study adopted an *ex post facto* research design, which is appropriate for examining relationships among variables using historical data that already exist and are beyond the control of the researcher (Anaike et al., 2026; Nworie et al., 2025; Ikwor et al., 2025). The design is suitable for investigating the effect of Quadruple Bottom Line disclosure on the cashflow yield of listed oil marketing firms in Nigeria, as the study relies on previously published financial and sustainability information. Since the disclosure practices and financial outcomes of firms cannot be manipulated retrospectively, the ex post facto design provides a reliable framework for analyzing observed relationships using panel data. The population of the study comprises all listed oil marketing firms on the Nigerian Exchange Group (NGX) as at 31 December 2024. The eight firms that comprised the population are: Conoil Plc, Eterna Plc., Aradel Holdings Plc., MRS Oil, Japaul Gold & Ventures Plc., Oando Plc., Seplat Energy Plc., and Totalenergies Marketing Nigeria Plc.

Purposive sampling technique was employed in selecting the sample. Only oil marketing firms that were listed on the NGX as at 2015 and had consistently published annual reports up to 2024 were included. This criterion ensured data availability and consistency over the study period. Based on these conditions, seven listed oil marketing firms that met the criteria were selected, viz: Conoil Plc, Eterna Plc., MRS Oil, Japaul Gold & Ventures Plc., Oando Plc., Seplat Energy Plc., and Totalenergies Marketing Nigeria Plc.

The study relied solely on secondary data, sourced from the published annual reports and financial statements of the sampled oil marketing firms. Data covered a ten-year period from 2015 to 2024. Information extracted included cashflow data required to compute cashflow yield, as well as disclosures relating to economic, environmental, social, and governance activities. Quadruple Bottom Line disclosure indices were developed using the Global Reporting Initiative (GRI) standards as measurement guides. Additional firm-specific data on firm size and firm age were obtained from the financial statements and corporate profiles of the firms. The use of audited annual reports enhances data reliability, consistency, and objectivity.

Data analysis involved both descriptive and inferential techniques. Descriptive statistics were used to summarize the characteristics of the variables and observe trends over time. Pearson correlation analysis was conducted to examine the degree of association among the variables. Prior to regression analysis, diagnostic tests were performed to assess the presence of heteroskedasticity and cross-sectional dependence, which are common challenges in panel data involving firms operating within the same industry. To address these issues, the study employed panel Estimated Generalised Least Squares (EGLS) using cross-section weights to correct for cross-sectional dependence and White period standard errors and covariance to correct for heteroskedasticity. This approach ensures efficient parameter estimates and robust statistical inference. The EGLS technique was then used to test the study hypotheses.

Table 3.1: Measurement of Variables

Variables/Proxies	Type	Measurement
Cashflow Yield (CFY)	Dependent	Operating Cashflow / Market Capitalization
Environmental Protection Disclosure (EPR)	Independent	See checklist in Appendix A
Social Disclosure (SOR)	Independent	See checklist in Appendix A
Governance Reporting (GVR)	Independent	See checklist in Appendix A
Economic Reporting (ECR)	Independent	See checklist in Appendix A
Firm Size (FSZ)	Control	Natural log of total assets
Firm Age (FAG)	Control	Current year minus year of incorporation

Source: Researcher's Concept (2025)

The model for this study was adapted from prior sustainability disclosure studies but modified to reflect the Quadruple Bottom Line framework and cashflow yield as the dependent variable. The functional relationship is expressed as:

CFY = f(EPR, SOR, GVR, ECR, FSZ, FAG) ……………………………………… eqn (1)

The econometric form of the model is specified as:

$CFY_{it} = \alpha_0 + \beta_1(EPR)_{it} + \beta_2(SOR)_{it} + \beta_3(GVR)_{it} + \beta_4(ECR)_{it} + \varepsilon_{it}$ ………… eqn (2)

To improve model robustness, firm size and firm age were included as control variables:

$CFY_{it} = \alpha_0 + \beta_1(EPR)_{it} + \beta_2(SOR)_{it} + \beta_3(GVR)_{it} + \beta_4(ECR)_{it} + \beta_5(FSZ)_{it} + \beta_6(FAG)_{it} + \varepsilon_{it}$ ……… eqn (3)

Where:
CFY_{it} = Cashflow yield of firm i in period t

EPR_{it} = Environmental protection disclosure

SOR_{it} = Social disclosure

GVR_{it} = Governance disclosure

ECR_{it} = Economic disclosure

FSZ_{it} = Firm size

FAG_{it} = Firm age

α_0 = Constant

εit = Error term

β1–β6 = Coefficients of the explanatory variables

The null hypothesis (H_0) is rejected and the alternate hypothesis accepted if the probability value is less than 0.05 at the 5 percent level of significance.

4.0 Data Analysis

4.1 Descriptive Analysis and Model Diagnostics

Table 4.1 Descriptive Statistics

	CFY	ECR	EPR	SOR	GVR	FAGE	FSZ
Mean	0.117314	0.900000	0.578571	0.828571	0.857143	40.07143	8.042686
Median	0.117396	1.000000	0.750000	1.000000	1.000000	47.00000	7.842672
Maximum	2.303389	1.000000	0.750000	1.000000	1.000000	68.00000	9.992167
Minimum	-5.173859	0.750000	0.000000	0.000000	0.000000	6.000000	6.943113
Std. Dev.	0.844245	0.123359	0.317208	0.379604	0.352454	17.41008	0.591644
Skewness	-3.028090	-0.408248	-1.292786	-1.743626	-2.041241	-0.383488	0.868806
Kurtosis	24.14726	1.166667	2.671296	4.040230	5.166667	2.004411	3.718218
Jarque-Bera	1411.329	11.74769	19.81359	38.62541	62.30324	4.606729	10.31081
Probability	0.000000	0.002812	0.000050	0.000000	0.000000	0.099922	0.005768
Observations	70	70	70	70	70	70	70

Source: Eviews 10 Output (2025)

As shown in Table 4.1, the mean cashflow yield of 0.117 indicates that, on average, the sampled oil marketing firms generated positive operating cashflow relative to their market capitalization during the period under review. However, the wide gap between the maximum value of 2.303 and the minimum value of −5.174 shows that cashflow performance varied greatly across firms and over time. The relatively high standard deviation of 0.844 confirms this volatility in cashflow yield. The strong negative skewness suggests that extreme low cashflow outcomes occurred more frequently than very high ones, while the very high kurtosis indicates the presence of extreme values. Although the Jarque Bera probability shows non normality, the sample size of 70 observations satisfies the central limit theorem, allowing reliable statistical inference.

Table 4.1 shows that economic reporting disclosure has a high mean value of 0.900, indicating that most firms consistently disclosed economic information based on the GRI framework. The narrow range between the minimum of 0.750 and maximum of 1.000 suggests limited variation in economic disclosure practices among the firms. This is further supported by the low standard deviation of 0.123, showing strong uniformity across observations. The slight negative skewness indicates that higher disclosure scores were more common. Although the Jarque Bera test suggests non normality, the number of observations is sufficient under the central limit theorem to support further analysis.

From Table 4.1, the mean environmental protection disclosure score of 0.579 suggests moderate disclosure of environmental information among listed oil marketing firms. The minimum value of 0.000 shows that some firm year observations did not disclose any environmental items, while the maximum of 0.750 indicates that none of the firms achieved full disclosure across all items. The standard deviation of 0.317 reflects noticeable variation in environmental reporting practices. The negative skewness implies that higher disclosure values were more frequent than lower ones. Despite the Jarque Bera result indicating non normality, the sample size ensures robustness of statistical tests based on the central limit theorem.

As reported in Table 4.1, the mean social disclosure score of 0.829 indicates a generally high level of social reporting among the sampled firms. However, the minimum value of 0.000 reveals that some firms did not report social activities in certain years, while the maximum of 1.000 shows that full disclosure was achieved in some cases. The standard deviation of 0.380 suggests moderate dispersion in social disclosure practices. The distribution is negatively skewed, meaning higher disclosure levels were more common. Although normality is rejected by the Jarque Bera test, the central limit theorem supports the validity of subsequent inferential analysis.

Table 4.1 indicates that governance reporting has a high mean value of 0.857, showing that most firms disclosed substantial governance related information. The range from 0.000 to 1.000 suggests that while some firms achieved full disclosure, others failed to disclose governance items in certain periods. The standard deviation of 0.352 points to moderate variability in governance reporting across firms and years. The strong negative skewness reflects a concentration of observations at higher disclosure levels. Even though the Jarque Bera probability shows non normality, the sample size satisfies the central limit theorem assumption.

The descriptive statistics in Table 4.1 show that the average firm age is about 40 years, indicating that the sampled oil marketing firms are relatively mature. The minimum age of 6 years and maximum of 68 years reveal wide differences in how long firms have operated. This variation is reflected in the standard deviation of 17.41. The slight negative skewness suggests that more firms cluster around higher age values. The Jarque Bera probability indicates approximate normality, and with 70 observations, the distribution comfortably meets the requirements of the central limit theorem.

As presented in Table 4.1, the mean firm size of 8.043, measured as the natural log of total assets, suggests that the firms are moderately large in scale. The minimum and maximum values show some variation in asset base among the firms. The standard deviation of 0.592 indicates relatively low dispersion, meaning firm sizes do not differ excessively. The positive skewness implies that a few firms are significantly larger than the average. Although the Jarque Bera test suggests non normality, the sample size is adequate under the central limit theorem for reliable econometric estimation.

Table 4.2 Model Diagnostics

Test Category	Test / Statistic	Value / Statistic	Probability (p-value)
Panel Cross-section Heteroskedasticity	Likelihood Ratio (LR)	73.16303	0.0000
Residual Cross-section Dependence	Breusch–Pagan LM	30.72814	0.0483

Source: Eviews 10 Output (2025)

Table 4.2 presents the result of the panel cross section heteroskedasticity test using the Likelihood Ratio statistic. This test is used to examine whether the variance of the error terms is constant across firms in the panel data. A constant variance is important for obtaining efficient and unbiased standard errors in regression analysis. The Likelihood Ratio value of 73.163 with a probability value of 0.000 indicates that the null hypothesis of homoskedasticity is rejected at the five percent level. This result shows that the residuals exhibit heteroskedasticity across firms, implying that the variability of errors differs among the listed oil marketing firms. The presence of heteroskedasticity justifies the use of robust estimation techniques to correct for this problem.

Also reported in Table 4.2 is the Breusch Pagan LM test for residual cross section dependence. This test examines whether the residuals of different firms in the panel are correlated with one another, which often occurs when firms operate within the same industry and are exposed to similar economic or regulatory conditions. The Breusch Pagan LM statistic of 30.728 with a probability value of 0.048 indicates that the null hypothesis of no cross section dependence is rejected at the five percent level. This suggests that shocks affecting one firm are likely to influence others within the sector. The result supports the decision to apply panel Estimated Generalised Least Squares with cross section weights to obtain reliable and efficient estimates.

4.2 Test of Hypotheses

Table 4.3 presents the results of the panel EGLS regression examining the effect of Quadruple Bottom Line disclosure on the cashflow yield (CFY) of listed oil marketing firms in Nigeria.

Table 4.3 Test of Hypotheses

Dependent Variable: CFY
Method: Panel EGLS (Cross-section weights)
Date: 12/16/26 Time: 19:39
Sample: 2015 2024
Periods included: 10
Cross-sections included: 7
Total panel (balanced) observations: 70
Linear estimation after one-step weighting matrix
White period standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ECR	0.758798	0.318242	2.384347	0.0201
EPR	0.223204	0.177103	1.260309	0.2122
SOR	0.163227	0.030354	5.377497	0.0000
GVR	0.683548	0.119719	5.709600	0.0000
FAGE	-0.007343	0.003426	-2.143143	0.0360
FSZ	-0.189426	0.078316	-2.418733	0.0185
C	0.400445	0.420813	0.951597	0.3449

Weighted Statistics			
R-squared	0.204460	Mean dependent var	0.355481
Adjusted R-squared	0.128694	S.D. dependent var	0.945281
S.E. of regression	0.787251	Sum squared resid	39.04509
F-statistic	2.698583	Durbin-Watson stat	2.027865
Prob(F-statistic)	0.021421		

Source: Eviews 10 Output (2025)

As shown in Table 4.3 above, the model's adjusted R-squared of 0.129 indicates that approximately 12.9% of the variation in cashflow yield is explained by the included independent and control variables, which is reasonable for studies in finance where many external factors can influence cashflow. The Durbin-Watson statistic of 2.028 suggests that there is no serious autocorrelation in the residuals, as values near 2 indicate independence of errors. The F-statistic probability of 0.021 shows that the model is statistically significant at the 5% level, confirming the joint validity of the regression in explaining variations in cashflow yield. The constant term (C) of 0.400 with a p-value of 0.345 is not statistically significant, indicating that when all independent variables are zero, the baseline cashflow yield is not different from zero in a statistically meaningful way. Firm age (FAGE) has a negative coefficient of −0.007 with p-value 0.036, indicating that older firms tend to have slightly lower cashflow yield, and this effect is statistically significant. Firm size (FSZ) also has a negative coefficient of −0.189 with p-value 0.018, suggesting that larger firms experience lower cashflow yield, which is significant at the 5% level. These results may reflect operational complexity or resource allocation inefficiencies in older and larger firms.

H_1: Effect of Economic Disclosure (ECR) on Cashflow Yield

Economic disclosure (ECR) has a positive coefficient of 0.759 with a p-value of 0.020, which is statistically significant at the 5% level. This means that for every one-unit increase in economic disclosure, the cashflow yield of listed oil marketing firms increases by 0.759 units, holding all other variables constant. The result indicates that greater transparency in reporting economic information such as direct economic value generated, financial risks, and government assistance positively influences the firms' ability to generate cash from operations relative to market capitalization. Therefore, economic disclosure has a significant and positive effect on cashflow yield, supporting H_1.

H_2: Effect of Environmental Disclosure (EPR) on Cashflow Yield

Environmental disclosure (EPR) shows a positive coefficient of 0.223, but the p-value of 0.212 exceeds the 5% significance level. This suggests that while an increase in environmental disclosure is associated with an increase of 0.223 units in cashflow yield, the effect is not statistically significant. Firms' reporting of environmental initiatives, waste management, and related impacts does not appear to translate meaningfully into changes in cashflow yield within the sampled period. Consequently, H_2 is not supported, indicating that environmental disclosure does not have a significant effect on cashflow yield for listed oil marketing firms in Nigeria.

H_3: Effect of Social Disclosure (SOR) on Cashflow Yield

Social disclosure (SOR) has a coefficient of 0.163 with a p-value of 0.000, which is highly significant at the 5% level. This indicates that a one-unit increase in social disclosure leads to an increase of 0.163 units in cashflow yield, holding other factors constant. The positive effect reflects that firms' engagement with communities, social development programs, and reporting of social impact contributes directly to improving operational cash generation. The statistical significance confirms that social disclosure exerts a meaningful effect on cashflow yield, providing strong support for H_3.

H_4: Effect of Governance Disclosure (GVR) on Cashflow Yield

Governance disclosure (GVR) shows a positive coefficient of 0.684 with a p-value of 0.000, which is statistically significant at the 5% level. This means that for every one-unit increase in governance disclosure, cashflow yield increases by 0.684 units. The result suggests that firms with better board structure, composition, and committee reporting are able to enhance cash generation efficiency, likely due to improved oversight, transparency, and strategic decision-making. Therefore, governance disclosure has a strong and positive effect on cashflow yield, fully supporting H_4.

4.3 Discussion of Findings

The positive and significant effect of economic disclosure on cashflow yield ($\beta = 0.759$, $p = 0.020$) suggests that when listed oil marketing firms provide detailed economic information, including direct economic value generated, financial risks, and government support, they are better able to enhance cash generation relative to market capitalization. This finding aligns with Nogueira et al. (2024), who showed that economic aspects of the TBL positively influence financial performance and long-term company continuity. Similarly, Pérez and Sevillano (2025) found that firms with higher sustainability scores, including economic disclosures, achieve better ROA and ROE outcomes, supporting the argument that transparency in economic information fosters investor confidence and operational efficiency. Akinleye and Owoniya (2024) also reported that economic disclosure contributes positively to firm performance among Nigerian listed firms, while Dincer et al. (2023) observed improved short-term performance in firms reporting detailed financial and economic information, particularly in developing country contexts. The result contrasts with Adegboyegun (2025), who found a negative effect of economic disclosure on share price under GMM, likely reflecting the differences in sector focus and the cashflow-based measure used in this study, which captures liquidity rather than market valuation.

Environmental disclosure showed a positive but non-significant effect on cashflow yield ($\beta = 0.223$, $p = 0.212$), indicating that while firms engage in reporting environmental initiatives such as waste management and climate risk mitigation, these efforts do not significantly translate into improved cashflow generation. This aligns with Sharma et al. (2022), who reported limited significance of environmental pillars on firm market value in Gulf Cooperation Council countries. Similarly, Pham et al. (2022) found that environmental disclosure alone may not consistently enhance operational efficiency in certain sectors, depending on the intensity of ESG practices and sector characteristics. Adegboyegun (2025) also highlighted that environmental reporting's impact can be inconsistent, with stronger effects observed in integrated reporting contexts rather than isolated disclosures. Nevertheless, the result partially agrees with Akinleye and Owoniya (2024) and Nworie and Orji-Okafor (2024), who emphasized that environmental reporting can support cost savings and long-term operational sustainability, suggesting that the effect may emerge over longer periods or through indirect channels rather than immediate cashflow improvements.

The finding that social disclosure positively and significantly affects cashflow yield ($\beta = 0.163$, $p = 0.000$) indicates that reporting on community engagement, social development programs, and the mitigation of negative operational impacts contributes to improved operational cash generation. This result is consistent with Manta et al. (2020), who found that firms implementing social policies, particularly related to equal opportunity and employee welfare, experienced better operational efficiency. It also supports the work of Adegboyegun (2025), where social disclosure positively influenced market valuation, and Pham et al. (2022), who reported operational performance gains from social sustainability initiatives. Similarly, Nworie and Orji-Okafor (2024) observed that integrating social disclosures enhances cost savings and efficiency, reinforcing the positive effect of social reporting on cashflow yield. These findings suggest that firms' attention to social responsibilities strengthens stakeholder trust and resource allocation, leading to more reliable cash generation.

Governance disclosure also exhibited a strong positive and significant effect on cashflow yield ($\beta = 0.684$, $p = 0.000$), demonstrating that transparent board structure, committee reporting, and governance policies improve firms' ability to generate cash from operations. This supports findings by Sharma et al. (2022), who emphasized that governance pillars are crucial for market valuation, and Akinleye and Owoniya (2024), who found that governance disclosures positively influence financial performance among Nigerian firms. Pérez and Sevillano (2025) similarly highlighted that governance transparency contributes to better ROA and ROE, while Dincer et al. (2023) confirmed that well-structured governance enhances performance in developing country contexts. The consistency across these studies underscores that governance practices provide operational oversight, reduce agency problems, and promote effective decision-making, which directly improves cashflow yield in the oil marketing sector.

5.0 Conclusion and Recommendation

The results of this study suggest that transparency and comprehensive reporting in economic, social, and governance dimensions play a crucial role in shaping the financial performance of listed oil marketing firms, particularly in enhancing their cashflow yield. Firms that provide detailed disclosures signal credibility, accountability, and responsible management to investors and stakeholders, which can strengthen confidence and encourage more efficient allocation of resources. The positive association between disclosure and cashflow yield highlights the value of integrating sustainability considerations into corporate operations, as it can improve operational efficiency, resource utilization, and long-term financial stability. Moreover, the findings indicate that certain aspects of reporting, such as social and governance practices, may create a favorable environment for stakeholder engagement, employee motivation, and strategic oversight, which collectively support the generation of consistent cash inflows. The lack of significant effect from environmental reporting suggests that the benefits of disclosure are not always immediate or uniform across all dimensions, emphasizing that stakeholders may respond differently depending on the type of information provided. Overall, the study reinforces the importance of structured and reliable disclosure systems in maintaining financial resilience, strengthening market reputation, and promoting sustainable operational practices. By demonstrating the connection between detailed reporting and cashflow yield, the study underscores the broader role of accountability, transparency, and corporate governance in driving both short-term liquidity management and long-term business sustainability, particularly in sectors with high regulatory scrutiny and social visibility like oil marketing. This relationship illustrates how comprehensive reporting can influence internal and external perceptions of firm performance, affecting investment decisions, operational priorities, and the overall financial health of organizations within competitive and regulated industries.

Based on the findings, the following recommendations can be made:

Given the positive and significant effect of economic disclosure on cashflow yield, management of listed oil marketing firms should ensure comprehensive and accurate reporting of economic information, including direct economic value, financial risks, and government assistance. This will help strengthen investor confidence and improve liquidity management.

Although environmental disclosure showed a positive but insignificant effect, sustainability officers and corporate social responsibility teams should enhance the depth and clarity of environmental reporting, providing measurable outcomes and linking initiatives to operational performance to better demonstrate the value of environmental practices.

Since social disclosure significantly enhances cashflow yield, board members and human resource managers should actively support and expand social programs, community engagement, and employee welfare initiatives while ensuring transparent reporting, as these practices can improve operational efficiency and reinforce stakeholder trust.

The strong positive effect of governance disclosure suggests that company boards and corporate governance committees should maintain robust governance structures, including clear reporting on board composition, committees, and oversight practices, to strengthen internal control, strategic decision-making, and cashflow generation.

5.1 Contribution to Knowledge

This study contributes to the existing literature by extending sustainability disclosure research beyond traditional accounting and market performance measures to cashflow yield, which provides a clearer indication of firms' liquidity strength and financial resilience. While prior studies such as Pérez and Sevillano (2025), Dincer et al. (2023), Sharma et al. (2022), and Pham et al. (2022) concentrated largely on profitability, market value, or efficiency outcomes, this study introduces a cashflow based perspective that strengthens understanding of the financial implications of sustainability disclosure. It also advances the Nigerian literature by shifting focus from manufacturing and consumer goods firms examined by Adegboyegun (2025), Akinleye and Owoniya (2024), and Nworie and Orji-Okafor (2024) to listed oil marketing firms, a sector with heightened regulatory, environmental, and social exposure. Unlike conceptual and cross country studies by Nogueira et al. (2024) and Nogueira et al. (2024), this study provides firm level and sector specific evidence from an emerging market context. Methodologically, it improves on earlier approaches by explicitly addressing cross sectional dependence and heteroskedasticity through panel Estimated Generalised Least Squares. By jointly examining economic, environmental, social, and governance disclosures rather than isolating individual dimensions as in Manta et al. (2020), the study offers comprehensive empirical evidence on how Quadruple Bottom Line disclosure influences cashflow yield among listed oil marketing firms in Nigeria.

5.2 Limitations of the Study and Suggestion for Further Studies

This study has some limitations that should be considered when interpreting the findings. The analysis relied only on secondary data obtained from published annual reports and financial statements, which means the study depended on the accuracy and completeness of information disclosed by the firms. Some disclosure items may have been reported in a general manner, making it difficult to capture their full effect. The sample size was limited to seven listed oil marketing firms due to data availability, which may restrict the extent to which the findings reflect the entire sector. In addition, the study focused on a ten year period, which may not fully capture longer term disclosure practices and financial outcomes.

Further studies can build on this work in several ways. Future researchers may include unlisted oil marketing firms or extend the scope to other sectors such as gas, energy, or manufacturing to allow broader comparison. Primary data, such as interviews or surveys, could also be used to complement published reports and provide deeper understanding of disclosure practices. Researchers may consider using longer time periods or more recent data as they become available. Other financial measures, such as liquidity ratios or firm value indicators, can also be examined to provide a more comprehensive view of the financial effects of quadruple bottom line disclosure.

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APPENDIX A: CHECKLIST FOR MEASURING QUADRUPLE BOTTOM LINE

GRI ITEMS	DISCLOSURE
Environmental Protection Reporting: GRI 306	**Number of Total of GRI 306 Items disclosed/4**
Waste generation and significant waste-related impacts	"1" if disclosed or "0" if not disclosed
Management of significant waste-related impacts	"1" if disclosed or "0" if not disclosed
Waste generated	"1" if disclosed or "0" if not disclosed
Waste directed to disposal	"1" if disclosed or "0" if not disclosed
Social Reporting: GRI 413	**Number of Total of GRI 413 Items disclosed/4**
Operations with local community engagement	"1" if disclosed or "0" if not disclosed
Social impact assessments	"1" if disclosed or "0" if not disclosed
Social development Programs	"1" if disclosed or "0" if not disclosed
Significant actual and potential negative impacts of operations	"1" if disclosed or "0" if not disclosed
Governance Reporting: GRI 2_9	**Number of Total of GRI 2_9 Items disclosed/3**
Structure of governance	"1" if disclosed or "0" if not disclosed
Composition of the board	"1" if disclosed or "0" if not disclosed
Committees of the board	"1" if disclosed or "0" if not disclosed
Economic Reporting: GRI 201	**Number of Total of GRI 201 Items disclosed/4**
Direct economic value generated and distributed	"1" if disclosed or "0" if not disclosed
Financial implications and other risks and opportunities due to climate change	"1" if disclosed or "0" if not disclosed
Defined benefit plan obligations and other retirement plans	"1" if disclosed or "0" if not disclosed
Financial assistance received from government	"1" if disclosed or "0" if not disclosed

Global Reporting Initiative (2025)