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## TABLE OF CONTENTS

The Impact of Gender Diversity on Earnings Quality of Listed Financial Services Firms in Nigeria: Analysis of Two-Stage Least Squares <i>Joseph Olorunfemi AKANDE, PhD</i> .....	<b>1-18</b>
The Impact of Audit Quality on Firm's Performance of Listed Consumer Goods Firms in Nigeria <i>Fatima Shehu Giwa, Prof. Benjamin Kumai Gugong, Gloria Pam Dachomo</i> .....	<b>19-33</b>
Women in Top Echelon Positions and their Effects on Carbon Emission Disclosure: Evidence from an Emerging Nation. <i>Saheed Olanrewaju Issa, Abdulkadri Toyin Alabi, Abdulbaki Teniola Ubandawaki</i> .....	<b>34-47</b>
CEO Characteristics and Financial Performance of Listed DMBs in Nigeria <i>Florence Bosede Ajagbonna, Benjamin Kumai Gugong, Augustine Ayuba, Idris Mohammed, Isuwa Dauda</i> .....	<b>48-69</b>
Post Covid-19 Pandemic: Comparative Study in the Value Relevance of Accounting Information Between Listed Manufacturing Firms and Listed Service Firms in Nigeria <i>Abbas, Abdulrahman Ngadi, Abubakar, Aliyu, Abdu, Abubakar</i> .....	<b>70-87</b>
Environmental and Social Information Disclosure Quality and Financial Performance of Listed Manufacturing Companies in Nigeria.: <i>Saka Tunde Abdulsalam, Ph.D</i> .....	<b>88-108</b>
The Impact of Corporate Social Responsibility on Bank Performance in Nigeria <i>Ibrahim Yinka Agbeyinka</i> .....	<b>109-123</b>
The Impact of Firm Characteristics on Accruals and Real Earnings Management of Listed Manufacturing Firms in Nigeria: <i>Muhammad, Aisha Chado</i> .....	<b>124-142</b>
The Impact of ESG Practices on the Risk Portfolio of Listed Oil and Gas Firms in Nigeria Using a Multilayered Criterion: <i>Joseph Olorunfemi Akande</i> .....	<b>143-155</b>
Effect of Selected Macroeconomic Variables on Stock Market Volatility in Nigeria <i>Hauwa Bayero Tijjani, Prof Sheikh Ahmad Abdullahi, Dr Ibrahim Mohammed, Dr Isma'il Tijjani Idris</i> .....	<b>156-171</b>
Moderating Effect of Audit Quality on Value Relevance of Fair Value Measurements Hierarchy of Listed Financial Services Companies: <i>Tesleem Olayinka Adeyemi</i> .....	<b>172-202</b>
Effect of Audit Quality Attributes and IFRS Adoption on Financial Reporting Quality of Listed Manufacturing Firms in Nigeria: <i>Muhammad, Aisha Chado</i> .....	<b>203-221</b>
Electronic Banking and Performance of Banking Sector in Nigeria <i>Kayode David Kolawole</i> .....	<b>222-234</b>

Do Audit Committee and Board Attributes Influence Environmental Disclosure: An Empirical Investigation of Listed Firms in Nigeria. <b>Haruna Muhammed Musa</b> .....	<b>235-248</b>
Impact of External Debts on Economic Growth in Nigeria <b>Ibrahim Yinka Agbeyinka</b> .....	<b>249-261</b>
Effect of Compliance Cost and Tax Burden on Tax Compliance of Small and Medium-Scale Enterprises in Benue State, Nigeria <b>Okpe Caleb John, Prof. Aliyu Nuraddeen Shehu, Prof. Bello A. Ahmad, Ahmed Aliyu Abdullahi PhD, Mohammed Musa Abdulkarim PhD</b> .....	<b>262-282</b>
The Effect of Bank Sectoral Credit and Exchange Rate on Financial Performance of Listed Manufacturing Firms in Nigeria. <b>Ibrahim Kabir Adedeji, Dr Ibrahim Muhammed, Prof. Muhammed Habibu Sabari Prof. Abiodun Popoola</b> .....	<b>283-297</b>
The Effects of Interest rate and Money Supply on Systematic Risk Associated with Return in Nigerian Exchange <b>Adedokun Rofiat, Prof. Sani Abdullahi, Dr. Ibrahim Mohammed, Prof. Ahmad Dogarawa</b> .....	<b>298-314</b>
Effect of Firm Attributes on the Growth of Healthcare Companies Listed on The Nigerian Exchange Group <b>Salisu Isyaku Dahiru, Adeyemi Tesleem, PhD, Suleiman Salami, PhD</b> .....	<b>315-331</b>
Corporate Social Responsibility and Performance of Firms in Lagos State Nigeria <b>Kayode David Kolawole</b> .....	<b>332-343</b>
Does Taxation Affect Banks' Profitability: Evidence from Nigeria <b>Emmanuel Imuede Oyasor</b> .....	<b>344-356</b>
Working Capital Management and Manufacturing Performance in Nigeria <b>Adedeji Daniel Gbadebo</b> .....	<b>357-368</b>
The Multidimensionality Foreign Direct Investment's Impact on The Economy <b>Emmanuel Imuede Oyasor</b> .....	<b>369-383</b>
Private Capital Formation, Public Sector Capital Formation and Economic Growth in South Africa. <b>Ahmed Oluwatobi Adekunle</b> ,.....	<b>384-396</b>
Macroeconomic Determinants and Stock Market Volatility amidst the Period of Economic Recession in Nigeria <b>Hauwa Bayero Tijjani, Prof Sheikh Ahmad Abdullahi, Dr Ibrahim Mohammed Dr Isma'il Tijjani Idris</b> .....	<b>397-413</b>

## **ENVIRONMENTAL AND SOCIAL INFORMATION DISCLOSURE QUALITY AND FINANCIAL PERFORMANCE OF LISTED MANUFACTURING COMPANIES IN NIGERIA.**

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### **Abstract**

The General perception of investors and other stakeholders is that self-developed environmental and social information disclosure (ESID) of companies lack quality required to make informed business decision which may impact company operating cash flow (OCF). Although, poor quality ESID often damaged company reputation and cause competitive setback that usually bring down OCF. Based on this backdrop, this study explores ESID quality of Listed Manufacturing Companies in Nigeria (LMCN) based on Global Reporting Initiative (GRI) and evaluate the impact on their OCF. The study employs Ex-Post Facto research design and data collected from annual reports of forty-seven LMCNs were analyzed using panel regression analysis based on random effect model. While quality of ESID of companies were measured based on GRI sustainability quality principle such as Balance, Clarity, Timeliness, Relevance, Reliability and Comparability, financial performance (FP) was measured by OCF of the studied companies. Findings from regression result revealed that quality of environmental and social information disclosure displays a significant and positive correlation with OCF. This study concluded that substantive investment in sustainability activities and quality disclosure is a form of undisputed contribution to sustainable development that in turn provide a basis for securing enhanced FP. This study recommends that manager should henceforth, consider potential returns that will come from investment in substantive environmental and social activities and quality disclosure that follow GRI quality reporting principle.

**Keywords:** ESD quality, Operating cash flow, GRI, G3 sustainability quality principle, Financial Performance, social and environmental sensitive sectors.

**JEL Code:** M14, Q56, L25

### **1.0 Introduction**

The global industrialization drive has produced respectable economic gains for all countries. However, alongside these advantages come environmental and social threat to people, environment and society. While social threat includes occupational injuries and adverse effects on host communities, environmental challenges range from global warming to impacts associated with products and services (Nwaigwe, *et al.*, 2020). The environmental and social damages stemming from industrial actions are perceived as irresponsible attitudes which constitute risks capable of creating setbacks in a company's market competitiveness, usually resulting in a decline in a company's operating cash flow. According to Alam and Tariq (2023), a company's financial performance (FP) is often threatened by social and environmental harm brought on by industrial activity, which culminates in a decline in operating cash flow.

Results of the aforementioned developments, awaken investors and other stakeholders and thus drive them to call for the disclosure of environmental and social information (ESD) in corporate annual reports to facilitate well-informed business decision-making. In the pursuit of building a positive reputation and gaining a competitive edge to enhance FP, companies in developed and developing nations, including listed companies on the Nigerian Exchange Group (NGX) embraced

sustainability practice and begun to provide internally generated sustainability information. This trend gained momentum following the global financial crisis and the amendment of the code of corporate Governance (CCG) conducted across significant capital markets, including NGX. However, the internally generated ESDs often face criticism for lacking the essential information characteristics necessary for making informed economic decisions. The critique, coupled with the growing recognition of the significance of fit-for-purpose ESD in economic decision-making, garnered international attention, that subsequently lead to the establishment of the Global Reporting Initiative (GRI) and the subsequent appearance of the G3 sustainable quality reporting framework in 2006.

GRI, G3 was established to unify, standardize, and ensure the comparability of ESD of companies worldwide. The G3 version of GRI has become widely recognized and frequently adopted by organizations, primarily due to the information quality characteristics it embodied and its alignment with financial reporting quality guidelines identified in the International Accounting Standards Board (IASB, 2010). The GRI, G3 sustainability quality framework offers comprehensive guidelines for reporting ESD that consistently meet the information needs of investors. Alam and Tariq (2023) deliberately note that companies associated with quality ESD tend to attract financial capital from ethical investors, which often improve the Cash Flow of such sustainability-friendly entities.

In the contemporary business landscape, listed companies, including those listed on the NGX, have embraced and adopted the use of internally generated environmental and social information (ESI) to show the company's sustainability commitments. This approach is aimed at upholding legitimacy, addressed sustainability concerns, and meeting the expectations of stakeholders. The objective is to cultivate a more favorable business image, attract financial capital, and subsequently enhance the companies' Operating Cash Flow (OCF). According to Okudo and Amahalu (2023), LMCN has progressively adopted self-developed ESD to boost its reputation, gain a competitive edge in the market, and ultimately improve financial efficiency. However, achieving an augmented operating cash flow may confront challenges if the self-developed ESD in the annual report does not adhere to the information characteristics defined in the upgraded generation 3 of GRI reporting guideline.

Building on the aforementioned context, the research study assesses the environmental and social information reporting quality (ESR) of LMCN and its influence on the operating cash flow (OCF). While prior studies on sustainability matters (Gift, *et al.*, 2021; Nweze & Nwadiator, 2020; Mohammed, 2018) concentrated on ESD quantity and its influence on financial performance, it is acknowledged that volume disclosure alone does not adequately substitute for the essential information quality attributes in ESD (Michelon, *et al.*, 2015). Hence, the necessity to examine information quality of ESD of LMCN and assess its effect on their OCF. In pursuit of this research objective, the study proposes and tests the hypotheses stated in null form as follows:

Ho: environmental and social reporting does not significantly impact the operating cash flow of LMCN.

The motivation for undertaking this study stems from the divergent opinions among investors regarding whether sustainability performance and reporting are a wasteful allocation of resources that often bring down OCF of companies, or they represent an endeavor that enhances corporate

transparency and accountability, thereby contributing to greater financial success. The study encompasses forty-seven (47) socially and environmentally sensitive companies listed across seven sectors on the NGX. The study's timeframe spans from the period (2011) of reviewed CCG to the year preceding the outbreak of COVID-19 in Nigeria. This timeframe is chosen to scrutinize the impact of ESD quality of LMCN on OCF before the onset of the pandemic.

The remaining sections of this study are structured as follows: Section Two presents a reviewed literature, section three describes the methodology, the fourth section presents empirical results and findings of the study, and section five dwells on the conclusion and recommendation.

## **2.0 Conceptual Review**

### **Environmental and Social Reporting Quality (ESRQ)**

Environmental and Social Reporting Quality (ESRQ) refers to how well investors and other stakeholders can easily access, comprehend, and trust the content related to environmental and social reporting (ESR) in the annual reports for making informed business decisions (Diouf & Boiral, 2019). Environmental and Social Reporting Quality (ESRQ) represents a sustainability information, characterized by constructs such as relevance and reliability, which allows for comparisons within and between companies in the same industries (Whittington & Ekara 2013). According to the authors, ESD is considered dependable and consistent when the data in the report meets the specific needs of wider stakeholders and can be relied upon and compared with ESD within and between peers in the same industry.

There is variability in the constructs used to describe ESDQ among scholars due to the voluntary and unregulated nature of the concept, however, constructs that embrace quality attributes akin to those established in the International Accounting Standards Board (IASB, 2010) and Financial Accounting Standards Board (FASB, 1980), such as the quality reporting principle identified in Generation 3 version of GRI, remain the most widely accepted framework (Nwaigwe, *et al.*, 2022; Laskar & Maji, 2018). Building on this argument, it is therefore reasonable to rely on the quality reporting guidelines identified in the Generation 3 version of GRI to define the meaning of ESDQ (Laskar & Maji, 2018).

### **Global Reporting Initiative, G3 quality reporting principle**

The G3 version of GRI framework was established in 2006 to serve as a guideline for reporting quality ESI to satisfy the sustainability information necessary for making informed economic decision (Laskar & Maji, 2018). The GRI, G3 quality principal acts as a well-established benchmark against which attributes of sustainability information are assessed (Munshi & Dutta, 2016). GRI, G3 emerged as the prominent ESD guideline after the introduction of the CCG in Nigeria in 2004. Until the review of the CCG in 2011, the GRI, G3 version remained the outstanding ESD quality framework in use and the sole sustainability quality guideline adopted by companies worldwide.

Generation 3 (G3) version of GRI, comprising of quality attributes like balance, comparability, sustainability context, relevance, reliability, timeliness, and clarity, has bolstered the credibility of ESD through consistent adherence to these quality characteristics. This guideline strengthens

report users understanding and provides more reliable sustainability information that aids investors and other stakeholders in making economic decisions (Qiu, et al., 2016).

The GRI, Generation 3 (G3) framework comprises of two sets of reporting principles: Performance Indicators (PI), covering environmental and social items designed to define report contents, and Quality Principles, established as guidelines for reporting substantive and informative SEI in the annual reports. Environmental and Social PI covers both input and output items. However, this study focuses Input items (internal sustainability items). While internal environmental items are concern with the company's efficiency in material inputs, energy used, water, and product and service consumption, internal social items address matters that concern the interaction between companies and internal stakeholders such as employees and shareholders. Sustainability items classified as internal social and environmental PI are presented in Table 1 as follow:

**Table 1**

*Social & Environmental Categories and Performance Indicator*

Categories & Indicators of GRI, G3 Social Performance	Categories & Indicators of GRI, G3 Environmental Performance
<b>Internal items: Categories and Indicators</b>	<b>Internal items: Categories and Indicators</b>
<u>Category: Employment:</u> Indicators: LA 1 , LA 2, LA 15--- (Core)	<u>Category: Material</u> Indicators: EN 1, EN 2----(Core)
<u>Category: Labor/Management Relations</u> Indicators: LA 4, LA 5---- (Core)	<u>Category: Energy</u> Indicators: EN 3 (Dir. energy), EN 4 (renewable energy), EN 5----(Core)
<u>Category: Occupational Health and Safety</u> Indicators: LA 7, LA 8---- (Core)	<u>Category: Water management</u> Indicators: EN 8, EN 21----(Core)
<u>Category: Training and Education</u> Indicators: LA 10----(Core)	<u>Category: Product and Services</u> Indicators: EN 26, EN 27----(Core),
<u>Category: Diversity and equal opportunity</u> Indicators: LA 13 (Core)	
<u>Category: Equal remuneration for women and men</u> Indicators: LA 14 (Core)	
<u>Category: Investment and procurement practices</u> Indicators: HR 1 (Core), HR 2 (Core), HR 3 (Core)	
<u>Category: Non-discrimination.</u> Indicators: <u>HR 4----(Core)</u>	
<u>Category: Freedom of association &amp; collective bargaining.</u> Indicators: HR 5---(Core)	

<u>Category: Child Labor /Force and compulsory labor</u>	
Indicators: HR 6, HR 7----(Core)	

**Source:** GRI, Generation 3 (G3, 2006).

Table 1 presents the ten (10) Core social items and four (4) Core environmental items as provided in G3 version of GRI.

GRI, G3 Sustainability information quality principle comprises of the following principles: Balance, comparability, reliability, relevance, sustainability context, timeliness and clarity. The principles are discussed in Table 2 as follows:

**Table 2**  
Gri, G3 Sustainability Quality Reporting Principles

Principle	Meaning
Balance:	Balance sustainability information disclosure implies that both successes and challenges or negative (social and environmental liability) aspect of company's sustainability activities should be reported to allow for reasoned or objective assessment of organization sustainability responsibility and performance (GRI, G3 2006).
Comparability:	Comparability of sustainability reports refer to disclosure of ESD data that enable internal and external stakeholders to identify, understand and compare similarities in and differences in sustainability performance among reporters of environmental and social matters (GRI, G3 2006)
Reliability:	ESI is reliable if the reported sustainability information can be subjected to verification by knowledgeable independent verifiable body. Sustainability reliability are attained when approach utilized to bring down environmental and social effect of company's activities are disclosed indicating third party attestation (GRI, G3 2006)
Timeliness:	Sustainability timeliness requires that sustainability information released should reach the users domain before it losses value to guide business decision making. Timeliness of ESD occurs when report is made available at a fixed interval for stakeholders to make an informed business decision.
Relevance:	ESD relevance according to GRI, G3 is the extent to which user of sustainability report consider sustainability information important in the business decision making process. Moreover, ESD is considered relevant when stakeholder are engaged and the engagement process indicated. Also categories of stakeholders involved should be disclosed (GRI, G3 2006). .
Clarity:	Clarity implies understandability of sustainability information by groups of users. It involves clear definition of performance indicators. The principle also required that users should be able to easily locate in the report the desired sustainability information without unreasonable effort.
Sustainability context:	GRI, G3 define sustainability context as situation in which sustainability report are presented in a way that represent a broader context

**Source:** GRI, Generation 3 (G3, 2006).

### **Financial Performance**

Financial performance (FP) represents the extent to which a company achieves its stated goals in terms of returns, profitability and growth, as assessed through accounting or market-based metrics such as Return on Equity (ROE), Return on Assets (ROA), Earnings per Share (EPS), Cash Flow from operating activities, and Share Price (SP), among others (Richardson, *et al.*, 1999). Similarly, Giannarakis, *et al.*, (2016) define FP as corporate profitability, indicating metrics like Return on capital employed (ROCE), Return on Sales (ROS), improved share price, cash flow from operations, and Tobin-Q.

In another perspective Giannarakis, *et al.* (2016) define FP as the extent to which companies achieve their stated economic goals. This indicates that FP is typically measured using financial accounting variables reported in the financial statements. However, Umoren, *et al.*, (2016) expressly argue that profitability reflects mere historical and short-term performance of an organisation, lacking the inclusion of risk-related information essential for making informed business decisions.

Given the evolving global business environment, with new regulations and the emergence of socially responsible investors, companies are increasingly allocating resources to environmental and social matter and disclosure. This reflects a commitment to higher accountability and transparency, targeted at attracting financial capital and influence investment funds, which will ultimately enhance cash flow from operating activities. Kalai and Sbais (2019) assert that investors most often appreciate informative and precise (quality) sustainability disclosure consequently, reward the reporters with more patronage, that usually improve their OCF. Okudo and Amahalu, (2023) argue that substantial sustainability activities and disclosure can reduce input costs, thereby increasing future OCF for the reporter. Integrating informative ESD with financial reports builds confidence among investors and also earn company higher competitive advantage that often improves company's financial success (Dilling 2010). Hart (1995) suggests that consistent disclosure of quality sustainability information, addressing stakeholders' concerns and expectations, may mitigate cash flow shocks when negative sustainability issues arise in an organization.

Despite the general belief that responsible ESD enhances CFP, empirical studies that investigate association between ESD and CFP vary in their outcome, with results showing negative, positive, and mixed outcomes. Developed and some developing countries tend to exhibit more consistency in findings where ESD is regulated and made mandatory. However, results of studies on the impact of ESD on the financial performance (FP) of LMCN remains inconsistent due to the voluntary and unregulated nature of ESD, different sustainability frameworks employed and financial performance measures (ROA, ROE, ROCE, EPS, ROS) used by researchers in this field. This study addresses this gap by employing a consistent sustainability framework developed by GRI, G3, and a financial performance variable (operating cash flow), which offered better predictive capabilities for sustainable financial performance.

## **Theoretical Framework**

### **Stakeholder Theory**

Stakeholders refer to individuals, organizations, or groups with claims or interests in a company (Clarkson, 1995). These claims or interests arise from transactions engaged with these stakeholders, forming the basis for companies to choose transparency and accountability in both financial and sustainability matters for these groups. According to Freeman and Reed, (1983)

stakeholder theory (ST) maintain that companies depend on the support of stakeholders to not only survive but also to enhance their financial performance. Stakeholders according to Donaldson and Preston (1995) are group into ethical and managerial.

The managerial branch of the ST emphasizes the necessity to manage stakeholders by reporting substantive sustainability information to broader stakeholder group, considering the fact that stakeholders have regulatory power, power over resources, and ability to impose sanctions like penalties and fines. ST asserts that the more critical the resources, the greater the effort required to cultivate strong relationships with the owners of such resources to garner their support and, consequently, grow company's financial success. ST propose that sustainability friendly companies that meaningfully address sustainability matters and precisely disclose them will gain a competitive advantage, which will influence investment funds of investors and ultimately improve company's financial performance.

## **Empirical Review**

Previous research studies on environmental and social reporting (ESR) quality and Financial Performance (FP) were assessed in this study to unveil the body of knowledge existing in this field. For instance, Alam and Tariq (2023) investigated link between sustainability reporting quality and firm financial performance, measured by Return on Asset. The findings of the study revealed that substantive sustainability disclosure quality enhances the financial performance of firms in Pakistan. The study revealed that firms' initiative for sustainability processes and disclosure earned firms increased value. In another study conducted by Dewi and Widyawati, (2023) which investigated association between sustainability information disclosure quality and financial performance involving sixty-three (63) Indonesian firms, a significant negative relationship was uncovered. However, a significant positive relationship was obtained when sustainability disclosure was externally assured. Finding emphasizes the importance of external assurance if more reliable sustainability information is to be provided for the investors.

Okudo and Amahalu (2023) explore the effect of environmental accounting on the profitability of eleven (11) Oil and Gas firms listed in NGX between 2011 to 2021. Data obtained from annual report were analyzed based on panel least square regression. Findings revealed that waste management, community development, employee health & safety and environmental remediation cost has significant positive effect on net profit margin of the studied companies. The study recommends higher commitment to all the environmental accounting component explored in the study. Nwaigwe, *et al.*, (2022) investigated on the impact of extent and quality of sustainability disclosure (SD) on the market value (MV) of companies listed in NGX in the period 2010-2019. Based on regression analysis, the result uncovered a positive but insignificant relationship between the level of SD and companies' MV. Findings also revealed a negative and significant association between SD Quality and MV.

Gift, *et al.*, (2021) studied the impact of sustainability reporting (SR) on the financial profitability (FP) of companies listed in the industrial goods sector of NGX. Findings based on panel least square regression, ganger causality and Hausman test revealed that the dimensions of sustainability reporting significantly influence cash value added. The study recommends direct regulation to encourage energy saving. Hongming, *et al.*, (2020) provided empirical evidence in Pakistan that environmental, health and safety and social reporting has a significant positive impact on firm

performance. The authors applied regression analysis to uncover a positive association between sustainability reporting and firm performance.

Kalai and Sbais (2019) studied the impact of quantity and quality of corporate social responsibility (CSR) on the FP of Tunisia companies. The empirical result based on the regression model revealed that both quantity and quality CSR positively influence the FP of companies regardless of size, risk and debt level. Findings revealed that stakeholders accord trust to sustainability friendly companies. Laskar and Maji, (2018) examined the sustainability disclosure quality (SDQ) and the influence on the FP of developed and developing Asian firms, comprising of Japan, South Korea, Indonesia and India. Based on the framework of GRI and panel data regression analysis, the study found a higher positive association between SDQ and FP for Japan, South Korea and India, however, the positive association is low for Indonesia.

Ching, *et al.*, (2017) explored the link between sustainability reporting quality (SRQ) and financial performance (FP) of 218 Brazilian listed companies for the period 2008 to 2014 using panel data. The study found a negative relationship between SRQ and FP. However, SRQ of the studied firm improves consistently throughout the years of study. Li, *et al.*, (2017) examine the impact of corporate environmental responsibility (CER) on the financial performance (FP) of Chinese energy companies listed in Shanghai and Shenzhen Stock Exchange using government regulation as a moderating effect. Content analysis and multiple regression analysis were applied to uncovered that corporate fulfillment of environmental responsibility will enhance financial performance (FP). Findings further revealed that government regulation adequately enhanced the relationship between CER and FP.

Financial performance and sustainability disclosure quality of American and Indian firms were investigated by Munshi and Dutta (2016). Measured by EPS and ROA, financial performance of firms in the two countries reveals weak and non-significant association with sustainability quality disclosure. This implies that enhance sustainability disclosure is a voluntary action and not motivated by improved financial performance.

Previous literature on ESDQ and FP reviewed shows that researchers in this field have contributed greatly, however the available studies indicate knowledge Gap as a number of these studies ignore information characteristic identified in G3 of GRI quality reporting guidelines, hence the knowledge gap identified.

### **3.0 Methodology**

This study adopts an ex-post-facto research design to measure the impact of ESD quality on the cash flow from operating activities of companies listed in the NGX. Secondary data is utilized, sourced from the annual reports of the studied companies.

The study population is seventy-six (76) listed companies in NGX, categorized as socially and environmentally sensitive companies. Because activities of these companies, impact people, society, and the ecosystem, they are often influence to participate in the disclosure of substantive and holistic sustainability information to gain competitive advantage thereby influence positively their financial performance (Khan, *et al.*, 2022).

Forty-seven (47) companies, constitute the sample size obtained after excluding fifteen (15) companies from the initial sixty-two (62) obtained through Krejcie and Morgan's (1970) sample table. Exclusions were based on criteria such as failure to remain listed on the NGX throughout the study period, the non-availability of sustainability report in their annual reports, and the untimely release of ESD on regular intervals. Sample companies are selected from seven (7) sectors based on the following NGX sector stratification: Consumer Goods, Industrial Goods, Healthcare, Agriculture, Natural Resources, Oil and Gas and Construction and Real Estate sectors.

Data for this study are collected from the annual reports and financial statements of LMCN. GRI, Generation 3 quality reporting guidelines is utilized to collect substantive environmental and social data available in the annual report of the studied companies. Identified ESI disclosure quality are quantified using a five-point numerical scoring scale as follow: Zero (0) for absence of informative ESD, One (1) for information attributes simply in narrative form, Two (2) for reporting ESD in explicit details, Three (3) for ESD reported in non-monetary quantitative terms, and Four (4) for ESD reported in monetary quantitative terms. Additionally, data for operating cash flow (financial performance) are obtained from audited financial statements.

The study employs descriptive statistics to provide summary measures of ESD quality variables and a snapshot of the cash flow from operating activities (OCF) of the studied companies. In addition to descriptive statistics, panel data regression is utilized as an inferential statistical analysis to measure the impact of ESD quality on the operating cash flow from operating activities of the studied companies.

## Model Specification

This empirical study drew on regression model of Ohlson (1995) as modified in the study of Loh, *et al.*, (2017). Ohlson, (1995) proposes that when informative environmental and social information disclosure (ESD) is jointly considered with book value of Equity (BVE) and abnormal earning (AE), financial performance tend to witness significant improvement. However, abnormal earning was modified and replaced with accounting earning in the empirical study of Loh, *et al.*, (2017). This study adopts the modified version of Loh, *et al.*, (2017) to produce the following proposed model:

Where:

OCFit = Operating cash flow for company i at time t.,

MTR Qit, ENGQit, WTMQit, PSVQit, EMPQit, MLRQit, OHSQit, TEDQit, DEOQit, EQRQit, IPRQit, NDCQit, FABQit, CLBQit represent material SIQ, energy SIQ, water

management SIQ, product and service SIQ, employment SIQ, management/labour relation SIQ, occupation health and safety SIQ, training and education SIQ, diversity and equal opportunity SIQ, equal remuneration SIQ, investment and procurement SIQ, non-discrimination SIQ, freedom of association and bargaining SIQ and child labour sustainability information quality of company  $i$  at time  $t$  respectively

However, EAR, BVE, CSZ and LEV represent earning, book value of equity, company size and leverage of company  $i$  at time  $t$  respectively.

#### **4.0 Data Analysis and Discussion of Findings**

Descriptive statistic presented in Table 3 shows dependent variable (DV) represented by operating cash flow from operating activities (OCF) and independent variables (IV) comprising of environmental and social items measured based on sustainability quality principle identified in G3 version of GRI.

**Table 3**

*Descriptive Statistics on Internal Environmental and Social Disclosure Quality and Cash Flow*

*Source:* Author's Computation (2024)

Table 3 presents the descriptive statistics comprising of the cash flow from operating activities (OCF) of the studied companies, with an average value of 10.939, a minimum value of -3.9, and a

	Cash Flow	Material Sustainability Qty.	Energy Sustainability Qty.	Water Management Sus.	Product & Service	Labour Management Relation	Occupation Health And Safety	Training & Education	Diversity & Opportunity	Equal Remuneration	Investment & Procurement	Nondiscrimination	Freedom Of Association	Child Labor	Employment Sustainability	Earning	Bvequity	Leverage	Total Asset
Mean	10.93922	11.63213	6.596386	6.021084	10.78614	10,80422	15.88554	16.60241	11.68675	7.051205	1.283133	7.810241	7.789157	1.623494	19.61747	2.88e+08	9.30e+08	.821745	16.90514
Median	13.96671	12.50000	7.000000	6.000000	12.00000	12.00000	16.00000	17.00000	12.00000	6.000000	0.000000	7.000000	6.000000	0.000000	21.00000	1225582	1.38e+07	.14	17.27169
Maximum	21.73703	26.00000	20.00000	17.00000	16.00000	12.00000	24.00000	22.00000	18.00000	12.00000	6.000000	21.00000	12.00000	16.00000	24.00000	2.54e+10	7.60e+10	47.9	22.82798
Minimum	-3.912023	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-5.52e+08	-6.16e+08	-2.34	9.439546
Std. Dev	6.8285	10.21396	6.368805	5.862692	2.435771	2.341194	4.788471	4.336147	3.532936	2.279642	2.463869	5.447648	4.467148	3.638472	4.254878	2.99e+09	5.58e+09	3.722613	2.196718
Skewness	-0.880791	0.141723	0.413554	0.482104	-1.11969	-1.54601	-0.09638	-0.58102	-0.25712	1.673078	1.395739	-0.08794	-0.54208	2.314152	-2.16868	9.380981	9.539063	7.526062	-0.73136
Kurtosis	2.163293	1.552031	1.791043	1.989338	2.891204	3.436843	1.747389	2.316981	2.415507	3.886390	2.948087	2.276162	1.979101	7.682858	6.934885	93.75123	110.5746	77.11674	4.11477
Jarque-Bera	52.6116	30.11455	29.68197	26.99070	69.53479	134.8950	22.21897	25.13330	8.383992	165.7572	107.8314	7.675763	30.67743	599.6798	474.4287	1.3e+05	1.9e+05	9.0e+04	46.78796
Probability	0	0.000000	0.000000	0.000001	0.000000	0.000000	0.000015	0.000003	0.015116	0.000000	0.000000	0.021539	0.000000	0.000000	0.000000	0.007361	0.007361	0.007361	0
Sum	3631.823	3861.867	34531.59	1999.000	3581.000	3587.000	5274.000	5512.000	3880.000	2341.000	426.0000	2593.000	2586.000	539.0000	6513.000	1.08e+11	3.50e+11	327.5992	5612.506
Sum Sq Dev	15434.01	34531.59	13425.92	11376.85	1963.816	1814.274	7589.651	6223.518	4131.422	1720.130	2009.386	9823.045	6605.241	4381.937	5992.419	8331.118	8331.118	8331.118	1597.264
Observation	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376

maximum value of 21.73. With this result, it implies that companies providing informative environmental and social information disclosure (ESDQ) had an average OCF of 10.39 during the study period.

In terms of the information disclosure on environmental indicators, comprising of material input, energy used, water consumption management, and product and services, average values yielded are 11.63, 6.59, 6.02, and 10.78, respectively. Quality of sustainability information disclosure ranged from a minimum value of 0.00 to a maximum value of 26. These results suggest that the quality of sustainability information concerning material input is moderately reported when compared to the standard provided in G3 version of GRI, quality reporting framework. However, quality of sustainability information disclosure for water management (6.02) recorded lower performance.

As for the quality of social sustainability information disclosure, comprising of occupation health and safety (15.88), training and education (16.60), diversity and equal opportunity (11.68), equal remuneration (7.05), investment and procurement (1.28), non-discrimination (7.8), freedom of association and bargaining (7.7), child or forced labor (1.62), and employment (19.6), the minimum quality information disclosure is 0.00, while the maximum disclosure is 24.0. Based on the descriptive statistics result it was revealed that the quality of social sustainability information disclosure is holistically reported, with higher quality information disclosure identified in employment (19.6) indicator. However, the lowest average information disclosure quality is recorded in the child labor (1.62) and investment and procurement (1.28) indicators.

Table 3 also show coefficient for skewness and kurtosis (SK) which reveals a statistically significant deviation from normal distribution. In addition to the SK test, the Jacque-Bera (JB) test was also carried out reflecting values that are more than 5% as indicated in Table 3. The result of JB test is interpreted to mean that the collected data are not normally distributed. Based on the result obtained from JB test, it therefore means that the Ordinary Least Squares (OLS) is inappropriate, consequently, the Fixed and Random Effects models prevail (Wooldridge, 2010).

### **Preliminary Test**

For the purpose of the objective of this study, the following preliminary test comprising of pairwise correlation (see Table 4), F-statistics, Breusch pagan lagrange multiplier (LM) and Hausman test (see Table 5) were conducted.

**Table 4**

*Pair-Wise Correlation Matrix of Internal Environmental and Social Information Disclosure Quality and Operating Cash Flow*

	Cash flow	Material	Energy	Water Management	Product& Services	Labour	Occupation	Training	Diversity	Remunerati on	Investment	Non-discriminati on	Freedom of Association	Child Labour	Employment	Total asset	leverage	Bv Equity	Earning
Cash flow	1.0000																		
Material Sus.	-0.1650	1.0000																	
Energy Sust.	0.3323	0.0731	1.0000																
Water Mgt	0.2887	0.1224	0.8591	1.0000															
Product&Services	0.2620	0.0978	0.09778	0.8591	1.0000														
Labor Manage.	-0.0330	0.1765	0.3783	0.4281	0.2539	1.0000													
Occupation	-0.0588	-0.1474	0.2156	0.2270	0.1965	0.0841	1.0000												
Training	0.0660	-0.0768	0.2051	0.2117	0.1789	0.0985	0.3992	1.0000											
Diversity	0.0901	0.2825	0.5327	0.6021	0.3768	0.3948	0.0991	0.1474	1.0000										
Remuneratio n	0.0529	0.3440	0.1637	0.0728	0.1583	-0.0905	0.0367	0.0851	0.2537	1.0000									
Investment	0.2766	-0.0887	0.4334	0.2527	0.2628	0.0728	0.0288	0.1521	0.1972	0.0436	1.0000								
Non disc.	0.3711	0.0701	0.6648	0.6701	0.4440	0.4526	0.2597	0.3063	0.4975	0.2630	0.2643	1.0000							
Freed. Of Assn	-0.0755	0.0921	0.1661	0.2470	0.1451	0.2860	0.1497	0.2363	0.3338	0.3650	-0.0636	0.3812	1.0000						
Child Labour	0.0100	0.0150	0.3592	0.2741	0.1645	0.1093	-0.0050	0.1601	0.2471	0.0797	0.4640	0.1878	0.1358	1.0000					
Employment	0.0296	0.2134	0.0674	0.1175	0.1069	0.0433	-0.2342	-0.3145	0.4037	0.0646	0.0116	0.0878	0.0679	0.0541	1.0000				
Totalasset1	0.3288	-0.2100	0.3936	0.3092	0.3104	0.0550	-0.1350	-0.0304	0.2082	0.0008	0.2752	0.2327	-0.0399	0.0295	0.0323	1.0000			
LEVERAGE	0.1232	-0.1419	-0.1790	-0.1782	0.1555	0.1525	0.1831	-0.1270	0.2184	-0.0289	0.0819	-0.0540	0.0752	-0.0687	0.0868	0.0009	1.0000		
BVequity	0.0343	0.1498	-0.0268	-0.0152	0.0565	0.0832	-0.0917	-0.0886	0.1584	0.2515	-0.0688	-0.0735	0.0689	-0.0657	0.0449	0.0322	0.0712	1.0000	
Earnings	0.0111	0.1130	-0.0377	-0.0292	0.0477	0.0665	-0.0834	-0.0694	0.1236	0.1908	-0.0617	-0.1053	0.0229	-0.0572	0.0385	0.0119	0.1289	0.7584	1.0000

Source: Author's Computation (2024)

Output of pair wise correlation shown in Table 4 indicated that operating cash flow and quality of sustainability information disclosure comprising of material input, labour/management relation, occupation, health and safety and freedom of association and bargaining are negatively related. Conversely, the result revealed a positive correlation between cash flow and quality of sustainability information disclosure of ENG, WTM, P&S, TED, DEO, ER, IP, NOD, CLB, EMP, EAR, BVE, TA, and leverage.

**Table 5**

*Diagnostic Results of F-Statistic, Breusch-Pagan and Hausman Test for Internal Environmental and social Information Disclosure Quality*

Model	Fit-Statistic s	P-value	Model	Breusch-Pagan Lagrange Multiplier (LM) Test		Hausman test	
				chi-Statistics	P-value	chi-Statistics	P-value
FIXINEV	28.59	0.000	Internal Environmental sust. Inf. disclosure quality	14.88	0.0375	1.67	0.9757
RANINEV	13.55	0.000					
FIXINSO	11.72	0.000	Internal Social information disclosure quality	43.03	0.0000	8.72	0.5586
RANINSO	41.69	0.000					

**Source:** Author's Computation (2024)

Findings of F-statistics exposed in Table 5 demonstrated that figures employed in the statistical model are fit to form a regression model. Evidence indicated in the p-value result showing value (0.000) less than 5% LOS

Result of Breusch-Pagan Lagrange (BPL) demonstrated in Table 5, shows Prob > Chi2 value of 0.0000 and 0.0375 and for social and environmental disclosure quality respectively. Based on findings of BPL, the test indicated that the Effect model comprising of Random (RE) and Fixed effect (FE) is most suitable model for testing hypothesis stated in this study.

The study employs Hausman statistical test to determine the suitability of FE or RE. Result shown in Table 5 indicates a P-value of Chi2 value of 0.9575 and 0.5586, which are both greater than critical value at 5% LOS. This implies that the Null hypothesis is not rejected and hence Random effect (RE) model become the appropriate model suitable for the data sets.

### **Restatement and Test of Hypothesis**

Environmental and social information reporting quality (ESRQ) do not significantly influence cash flow from operating activities of LMCN

To address the research question stated in this study which bother on the effect of quality ESD on cash flow from operating activities of LMCN, a panel data regression analysis was conducted.

## Regression Analysis Results (See Table 6 & 7)

**Table 6**

*Internal Environmental Information Reporting Quality and Operating Cash Flow*

Independent variables	Dependent Variable: Cash Flows		
	(1)	(2)	
	Fixed Effects	Random Effects	Coefficients (standard errors)
	Coefficients		
Material disclosure quality	1711575** (.0352969)	.1032272** (.0345307)	
Energy disclosure quality	-.0143325 (.2990797)	.1161166** (.0385017)	
Water disclosure quality	-.1746602 (.3091421)	-.0587739 (.1190258)	
Product &Services disclosure quality	.4250837*** (.2750272)	.3648939*** (.0850721)	
Total Assets	.0095032** (.0047301)	.0128024*** (.0034748)	
Leverage	22,057 (575,461)	25,448 (435,435)	
lnEarning	666,665 (821,920)	1.393e+06** (686,609)	
lnBVequity	-857,019 (959,773)	-852,856 (760,696)	
R-Square	0.0301	0.2248	
Wald Chi2	1.25	13.55	
Prob>Chi2	0.2771	0.0000	
Const	-4.989962*** (.605511)	-6.428318*** (1.175609)	
Observations:	335		
Number of CID:	47		

**Source:** Author's computation using STATA 14, (2024).

Standard errors in parentheses\*\*\*, \*\* and \* denotes 1%, 5% and 10% level of significance respectively

Table 6 present the outcomes of the panel regression utilized to assess the impact of environmental information disclosure quality on the cash flow (OCF) from operating activities of listed companies in Nigeria. In this analysis OCF represent the DV while sustainability information quality of material input, energy used, water consumption management, and product and services represent the IV. Also included in the analysis is the theoretical and control variables

represented in the study by earnings, book value of equity (BVE), leverage, and total assets respectively.

Analyzing the results of the Random Effects (RE) model presented in column 2 of Table 6, quality of environmental information disclosure with regard to material input, energy used, and product and services, including earnings and total assets, exhibit positive and statistically significant relationships with cash flow at 5%, 5%, 1%, 5%, and 1% LOS, respectively. This implies that disclosure of quality environmental information regarding material, energy, and product and services, including substantial earnings and larger total assets, significantly impact the operating cash flow of LMCN. Leverage yielded a positive effect on OCF; however, the positive effect is insignificant, suggesting that the effect is not statistically justified.

**Table 7**

*Internal Social Information Reporting Quality and Operating Cash Flow*

Dependent Variable: Cash Flows		
Independent variables	(1)	(2)
	Fixed Effects	Random Effects
	Coefficients (standard errors)	Coefficients (standard errors)
Labour/Mgmt. disclosure quality	-.2349847 (.288189)	.6095078*** (.1679628)
Occup/Health/Safety disclosure quality	-.1869606 (.1395529)	.2382765*** (.0778298)
Training & Education disclosure quality	.0789221 (.1581194)	.0828732 (.0920984)
Diversity & Equal opp. disclosure quality	.2739055 (.2330846)	.1610603** (.0267787)
Equal Remuneration	.0682258 (.3183007)	.0768362 (.1618564)
Investment & Procurement disclosure quality	.555734 (.3045711)	.4733188*** (.1558804)
Nondiscrimination disclosure quality	.5048133*** (.1280318)	.641382*** (.0812088)
Freedom of Ass. disclosure quality	-.2014486 (.1702487)	.2002227** (.0869688)
Child Labour disclosure quality	-.278202 (.2020735)	.2555041)** (.1034846)
Employment disclosure quality	.0991304 (.1705075)	.0021008 (.0905909)
InEarning	1.0544106 (767,353)	1.3081206** (662,604)
InBVequity	-104,429 (928,949)	-777,547 (741,316)
Leverage	105,314 (310,277)	203,971 (273,620)
Total asset	.0102222**	.0104637***

	(.0040545)	(.0032347)
R-Square	0.0285	0.3218
Wald Chi2	41.69	11.72
Prob>Chi2	0.0001	0.0000
Constant	-10.22101***	-15.42539***
	(.956421)	(3.529719)
Observations	335	
Number of CID	47	

**Source:** Author's computations using STATA 14, (2024).

Standard errors in parentheses\*\*\*, \*\* and \* denotes 1%, 5% and 10% level of significance respectively

Table 7 illustrates the outcomes of the panel regression analysis performed to explore the impact of social sustainability information disclosure quality on the OCF of LMCN. In this model, OCF serves as the DV, while social sustainability information quality of employment, labor/management relations, occupation, health and safety, training and education, diversity and equal opportunity, equal remuneration, investment and procurement, non-discrimination, freedom of association, and child labor constitutes the IV. Book value of equity (BVE), earnings, total assets, and leverage are utilized in the study to represent the theoretical and control variables respectively.

Random Effects (RE) result, presented in column 2 of Table 7, reveal that quality of social information reporting concerning labor/management relations, occupation, health and safety, diversity and equal opportunities, investment and procurement, non-discrimination, freedom of association, and child labor are significantly correlated with OCF. From the result, it means that disclosing quality social information in these areas of sustainability significantly contributes to larger OCF of the companies studied. However, quality of sustainability information concerning training and education, equal remuneration, and employment, as well as leverage, yielded positive association, but the relation is insignificant with cash flow. The book value of equity (BVE) has an insignificant negative relationship with OCF.

Model diagnostic results indicate  $p=0.000$ ,  $R^2=32\%$  and a  $\text{Wald-X}^2 = 11.72$ . This suggests that the model together is jointly significant and show a good fit.

## Discussion of Findings

The study investigates the impact of environmental and social information disclosure quality (ESDQ) on the cash flow from operating activities of LMCN. The analysis delves into two sustainability dimensions—environmental and social—Finding of the two dimensions are presented as follow:

Result of material input information reporting quality reveal a significant positive impact (0.103) on cash flow from operating activities at a 5% LOS. From the result it is suggested that companies that provide higher level sustainability information disclosure with regard to improvement attained in material efficiency tend to experience enhanced productivity, which usually attract investors to patronize the equity of the reporter thereby improve their operating cash flow.

In terms of quality of energy information disclosure, finding exhibits a significant positive connection with OCF. This result implies that investors and other stakeholders are adequately and

timely informed regarding energy conservation initiative of the studied companies. Consequently, companies are favored vis-à-vis increased patronage which led to enhanced OCF.

Significant positive association is found between quality of product and service sustainability information disclosure and OCF at a 5% LOS. This means that holistic sustainability disclosure concerning changes made to products and processes to enhance productivity and to satisfy sustainability criteria often attract investors and other stakeholders which potentially led to higher OCF. Contrary to information on material input, energy used and product and service disclosure, quality of information disclosure regarding water management reveals a negative and insignificant relationship with OCF. This implies that water management information disclosure appears too complex, unreadable and less attractive to the user which led to market competitive setback that adversely affect company financial success indicated in the downward trend OCF.

Concerning quality of social information indicators, disclosure regarding labour/management information, reveal that substantive and informative disclosure practice indicating harmonious industrial relation between workforce and management tend to favourably influence financial performance of companies that embrace such social sustainability friendly practice (Hongming, *et al.*, 2020). Similar to Labour information disclosure, sustainability disclosure quality of OHS yielded a positive relationship with OCF at 1% LOS. This denote that disclosure of relevant fatalities related information such as severe workplace injuries, and road traffic accidents tend to earn the reporter trust and confidence of investors that positively improve their financial performance (Laskar & Maji, 2018).

Quality of social information reporting of diversity and equal opportunities yielded a favourable significant impact on OCF. From this finding it is deduced that the recruitment policy of the studied companies follows sound sustainability character as it devoid of ethnic, or religion bias. Holistic disclosure demonstrating this achievement usually attract capital fund of socially responsible investors because the investor believe that such practice most often attracts talented diverse forces which often time influence company productivity that result in better financial success (Kalai & Sbais, 2019).

As for investment and procurement disclosure quality, finding exhibits a positive effect with OCF at 1% LOS. This means that providing satisfactory sustainability information concerning contract and agreement with third parties tend to earn reporter more trust and confidence of market participants and investor which can translate to enhanced financial success (Gift, *et al.*, 2021).

Furthermore, quality of non-discrimination sustainability information demonstrated a positive and significant effect with OCF at 1% LOS. This implies that social sustainability disclosure demonstrating regard for human right and reflecting no discrimination in term of sex, tribe and profession may improve company's financial performance (Okudo & Amahalu, 2023).

Concerning freedom of association and collective bargaining social information reporting quality, the result shows a statically significant positive effect with OCF at a 5% LOS. This mean that disclosure of reliable sustainability information exposing the activities of suppliers often influence stakeholders especially socially responsible investors to provide financial capital for the reporter (Alam & Tariq, 2023). Result of child labour social information disclosure yielded a significant positive effect with OCF at a 5% LOS. Relevant sustainability disclosure demonstrating company policies regarding business relation with supplier involved in child labour activities may encourage market participant to patronize equity of the reporter thereby significantly improve OCF of the reporting company.

Disclosure of substantive, informative and precise environmental and social information follows stakeholder theory. Stakeholder theory maintains that efficient resource management and better production practices that meet the yearning of resource owner (investors and other stakeholder)

and its substantive disclosure tend to improve companies financial performance. The findings of this study come to confirm studies of Alam and Tariq, (2023); Okudo and Amahalu, (2023); Abdulsalam, (2022); Gift, *et al.*, (2021), Hongming, *et al.*, (2020); Kalai and Sbais (2019), Laskar and Maji, (2018) and Li, *et al.*, (2017) which found positive connection between social and environmental information disclosure quality and financial performance. Their studies uncover that investors and other stakeholders are most often attracted to the sustainability activities of the reporter of quality sustainability information, consequently they accord them confidence, trust and increased patronage which in turn lead to enhanced financial success. However, result of this study contradicts studies of Dewi and Widyawati, (2023), Nwaigwe, *et al.*, (2022); Ching, *et al.*, (2017) and Ameer and Othman (2012) which uncover negative link between ESD quality and corporate financial performance.

Other factors investigated in this study such as size of the companies and earnings reveal positive and significant relationship with OCF at 1%, 5%, 5% and 1% LOS. This implies that larger size companies and companies with higher earnings tend to invest more resources in social and environmental matters and substantively disclose it in the annual report, which in turn reward them with better and improved OCF. Leverage reveals a positive and non-significant relationship with OCF, suggesting that creditors attach less importance to sustainability activities and disclosure when making investment decisions. The theoretical variable of Book Value of Equity (BE) yielded non-significant negative influence on the association between ESDQ and OCF. In summary, the results of this research work demonstrated that the quality of both dimensions of sustainability information (environmental and social) disclosure significantly contributed to enhanced cash flow from the operating activities of LMCN. The results affirm the importance of meaningful and informative sustainability disclosure in enhancing financial performance. Results further uncover that company size and substantive earning significantly drive favorable and positive relationship between environmental and social disclosure quality and OCF.

## 5.0 Conclusion

This empirical study concludes that quality of environmental and social information reporting of LMCN, as examined in this research, is significantly substantial. Their holistic disclosure lead to an upward trend in the cash flow from operating activities (OCF). The studied companies strategically use informative ESD to attain a market competitive advantage that subsequently improves their OCF levels.

## Recommendation

Given that findings of the study demonstrated significant and positive impact of quality environmental and social information disclosure on the increasing operating cash flow (OCF) of LMCN, the study recommends that company should provide a clear, comparable, and reliable environmental and social information (ESD) in accordance with the GRI, G3 quality framework which will attract finance capital that will improve their OCF. Furthermore, the study recommends that environmental and social information be quantified in monetary terms to ease the business decision of investors, thus this will attract financial capital of users which potentially will enhance the OCF of the reporter.

It's important to note that the financial service sector was not included in this study due to its distinct disclosure regulatory system. However, this exclusion does not affect the generalization of the study's findings, as the outcomes are deemed sufficient for drawing overall conclusions. Moreover, further studies may investigate impact of ESD on FP of large sample of companies that cut across regions or companies of the world.

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