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EFFECT OF BOARD CHARACTERISTICS ON ENVIRONMENTAL DISCLOSURE IN NIGERIA AND GHANA

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ABSTRACT

This study ascertained the effect of board characteristics on environmental disclosure of listed oil and gas firms in Nigeria and Ghana for twelve (12) year period spanning from 2012-2023. Specifically, this study ascertained the effect of board size and board independence on effluent disclosure. Panel data were used in this study, which were obtained from the annual reports and accounts of twelve (12) listed oil and gas companies for the periods 2012-2023. Ex-Post Facto research design was employed. Inferential statistics using Pearson correlation coefficient and Panel least square regression analysis were employed to test the hypotheses of the study. Conclusively, the results of the tested hypotheses revealed that board size has a significant but negative effect on effluent disclosure (β_1 = -0.016095; p-value = 0.0000 < 0.05); while Board independence has a significant and positive effect on effluent disclosure (β_1 = 0.037481; p-value = 0.0000 < 0.05. Conclusively, Board attributes have mixed effect on environmental disclosure of listed oil and gas firms in Nigeria and Ghana. The study recommended amongst others that the independent to enable them perform their functions effectively.

Key words: *Board Size, Board Independence, Effluent Disclosure*

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1. INTRODUCTION

Boards of directors are the highest governing bodies that sets companies polices and makes important strategic decisions. The boards of directors represents the interests of shareholders and shoulder the task of monitoring managements' actions, protecting shareholder interests, and overseeing the activities of the company. Corporate board is pressured from all stakeholders for better reporting on corporate health. Meanwhile, effective discharge of the responsibilities of a corporate board is assured by an appropriate balance of skills and diversity without compromising competence, independence, and integrity. Corporate governance is the way in which companies are managed and controlled. In particular, it focuses on the role of the company's board of directors and their responsibilities to shareholders and other stakeholders. Considering a number of corporate scandals and that basic legal requirement have proved inadequate for protecting shareholders interest, more specific regulations have been introduced to institutionalize best practices that will enhance the integrity of the business environment and thus facilitate trade and investment (Ubeh, Okoye, Nwoye & Amahalu, 2024). The most current effort from Nigeria environment being the issue of Nigeria Code of Corporate Governance 2018 by Financial Reporting Council of Nigeria (FRCN) hereafter referred to as the Code. Companies now adopt "apply and explain" approach which requires firms to explain how specific principles have been applied. It is believed that the quality of corporate governance adopted and the nature of a company's culture and behaviors are having a significant impact on performance and long term sustainability of firms. No wonder the Code emphasized that companies with the effective board and competent management that act with integrity are better placed to achieve their goals and contribute positively to society. Boards of directors' play a central role in the management of companies and establishing the culture, values, and ethics of the company. Their roles are usually categorized into monitoring, and supervisory roles all geared towards aligning the interest of the board, the management with the interest of the shareholders and other interest groups to ensure that firms succeed not only in the present but also in the future.

Currently, the main method of environmental disclosure is through reporting. In many countries especially in Nigeria and Ghana, there is not yet consensus or legal statute or country-specific framework on how environmental reporting should be presented. As a result, many firms including oil and gas firms just report some of their social responsibility activities in a segment of their financial reports, especially those aspects that portray a good image of their companies, not reporting their social responsibility to maintain or protect their environment. This voluntary reporting context of environmental reporting in Nigeria and Ghana makes the study necessary as to ascertain the attributes of the board of directors that influence environmental disclosures. Thus, it is glaring that the board of directors is crucial in promulgating environmental reporting and thus play an indispensible role in influencing the company's environmental disclosure. It is against this backdrop that this study sought to ascertain the effect of board attributes on environmental disclosures of listed oil and gas firms in Nigeria and Ghana. Directors do not spend enough quality time discussing strategy and are also too influenced by investors who care only about the short term. Other challenges faced by Boards include ineffective governance mechanisms, for example, lack of board committees or committees consisting of few or a single member; non-independent board and audit committee members, for example where a chief executive officer fulfilled multiple roles in various committees. The poser whether diverse boards make better decisions and result in better outcomes and profits for companies has remained a puzzle.

Environmental reporting includes a wide range of information about a company's environmental performance and impacts. When viewed over time, environmental reporting assist in placing annual positive and/or negative information about a company, in addition to demonstrating the long term commitment of the company. The key challenge of environmental reporting is deciding who the audience is. The challenge is to think about how to use the reporting information gathered more flexibly, in order to meet the specific interests of different stakeholder groups in other to create value. In practice, however, and in the absence of a universally accepted approach to categorizing all the components of the environmental accounting, reporting organizations do not necessarily follow a particular reporting standard in relation to environmental reporting. They see confusion that results in the receipt of multiple requests for information about the same subject matter from multiple sources. This leads to duplication of effort, increased administrative burdens and uncertainty about what should be reported, how and to whom. Hence, the need to determine the effect of board characteristics on environmental disclosure of listed oil and gas firms in Nigeria and Ghana.

1.1 Objectives

The main objective of this study is to ascertain the effect of Board characteristics on environmental disclosure of listed oil and gas firms in Nigeria and Ghana. Specifically, this study sought to:

1. Determine the effect board size on effluent disclosure.
2. Assess the effect of board independence on effluent disclosure.

1.2 Research Questions

The below questions provided answers for the achievement of the above formulated research objectives:

a. To what extent does board size affect effluent disclosure?
b. What is the effect of board independence on effluent disclosure?

1.3 Hypotheses

The null form of hypotheses was adopted to obtain answers for the research questions as below:

H_{o1}: Board size has no significant effect on effluent disclosure.

H_{o2}: Board independence has no significant effect on effluent disclosure.

2. LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Environmental Disclosure

Environmental disclosure is a form of corporate responsibility to the society as a result of activities which emerging a negative impact on the environment. Environmental Disclosure (ED) is the accountability of fulfilling the information needs of the company for investors, shareholders, customers, and other parties (Aderobaki, Amahalu & Adeniyi, 2024). Environmental reporting and disclosure practices are a means of communicating to the stakeholders about the impact of the organization's actions on the environment.

Effluent is waste other than waste from kitchens or toilets, surface water or domestic sewage. It can be produced and discharged by any industrial or commercial premises (Cristina, 2024). It is produced and discharged by any industrial or commercial premises, such as a food processing factory or manufacturing business. Effluents are harmful when they enter the environment, especially in freshwater, because of their polluting chemical composition (Tuser, 2024). Effluents can cause specific environmental damage that may affect not only the quality of water and the associated facility, but the environment in general as well.

The Board of directors is the primary element of corporate governance, especially since they control many of the other mechanisms, and they are ultimately the last decision maker of any firm. Abu, Okpeh and Okpe (2016) posits that the board is the supreme decision making unit in a company as they have the responsibility to safeguard and maximize shareholders wealth, oversee firm performance and assess managerial efficiency. They further added that the main role of the board is the ratification and monitoring of decisions, overseeing the actions of managers or executives. From the above, it is glaring that the board of directors' task is a challenging one and they should not only prevent management practices. They may lead corporate failures or scandals but ensure that firms act on opportunities that enhance the value of all stakeholders. Board size is taken to refer to the total number of members serving on a firm's board (Nguyen & Huynh, 2023). Board size is the total number of directors on a board. An optimal board size should include both the executive and non-executive directors. The effectiveness in structuring the board is important for governing the company). Independence occurs when a board member has not been and is not currently employed by the company or its auditor and the board member's employer does not do a significant amount of business with the company. An independent director, in corporate governance, refers to a member of a board of directors who does not have a material relationship with a company and is neither part of its executive team nor involved in the day-to-day operations of the company.

Empirically, some studies have shed light on the relationship between board size and triple bottom line accounting but the results seem inconsistent and inconclusive. Amran, Lee and Devi (2014) found that board size is positively related with sustainability reporting among 113 Asian pacific firms. The same positive association was found in Taiwan – listed and Pakistan – listed companies. (Mahmood, Kouserwans, Ahmad & Salman 2018) Osazuwa and Che-Amad (2016) utilized a cross-section data of 116 firms in Nigeria and provided evidence that board size positively relates to the level of environmental disclosure. However, some extant literature also provides negative relationship or association between board size and triple bottom line accounting document a significant negative relationship between board size and corporate performance, advocating that large board size results to ineffectiveness in communication coordination and decision making. Bukair and Abdul Rahman (2015) also examined the influence of board size on corporate social responsibility disclosure in the Islamic banks of gulf cooperation council countries. Their results indicated that board size has no effect in improving CSRO.

Extant literature, suggests there is a relationship between board independence and extent of triple bottom line reporting. Sharif and Rashid (2014). The results appear inconclusive and inconsistent Post, Rahman &Mcquillen2014 cited in Ofoegbu et. al. 2018), empirically investigated. The association between board structure and company environmental performance using sustainability –themed alliance as a moderating variable and the whole public oil and gas Company as a sample. They found among others that a higher percentage of independent non-executive directors on the board are expected to relate to extensive environmental impact disclosure significantly. Chen and Jaggi (2000), found that companies with more independent boards practice have more comprehensive financial disclosures. From these studies, it is assumed that more independent directors in the board may lead to improved transparency and disclosure, since outside directors will motivate the top management to consider social and environmental disclosures. Some prior studies however differed in their results.

2.2 Theoretical Framework

2.2.1 Agency Theory

The agency theory developed by Jensen and Meckling (1976) is an important theory in the field of sustainability and triple bottom line reporting. An Agency relationship describes the contractual agreement between two parties (the Principal and the Agent) whereby one appoints another party (the Agent) to act on his behalf. In the contract, the principal delegates some of the power to make decisions to the agent (Jensen & Meckling, 1976).The Agency theory explains the conflicting relationship between managers and stakeholders assuming the presence of information asymmetry, opportunistic behavior of agents, and conflicts of interest between principal (Shareholders) and agents (manager).

Agency theory is relevant to this study because Agency theory describes managers as agents and shareholders as principals. The theory argues that the value of a firm cannot be maximized if appropriate incentives or adequate monitoring are not effective enough to restrain firm managers from using their own discretion to maximize their own benefits. Also, the theory provides a framework for understanding the mechanisms, such as monitoring, incentives, and governance structures that can be used to align the interests of principals and agents

2.3 Empirical Review

The emergence of the triple bottom line accounting subject has aroused the interest of various stakeholders globally.

Alotaibi (2020) studied determinants of sustainability disclosure of Saudi listed companies. Two main dimensions of the factors influencing sustainability disclosure were investigated. Company characteristics (size, age, profitability, type of industry and leverage) and board of directors' characteristics (size, independence and annual number of meetings). The study utilized content analysis approach to collect data from annual reports of non-financial companies listed in the Saudi stock market between 2015 and 2017. The total number of annual reports that were covered in the research was 357. The study however focused on disclosure of environmental sustainability. The Global Initiative reports issued in 2013 was used to examine the report with respect to the disclosure of environmental sustainability which was analyzed using regression modeling and analysis. The findings reveal that the elements of corporate governance except for board independence are not important determinants which might be due to the voluntary nature of disclosure of sustainability information. The evidence provided in this study emanated from Saudi, therefore, results may not be applicable to other countries, more specifically, African countries.

Sandira, Dinesh and Oren (2020) investigated the influence of board characteristics on triple bottom line (TBL) reporting, both at aggregate and component level (environment, social and economic) for the top 50 companies in New Zealand.Content analysis is used to create reporting indexes for 2016 and 2017, which serve as proxy for TBL reporting. Regression analysis is then usedto investigate the association between board characteristics and TBL reporting, along with its separate components. Results found significant positive association of TBL with profitability and firm size; environmental bottom line with board size and profitability; social bottom line with board size, profitability and firm size; and economic bottom line (ECO) with firm size. A significant negative association was found between ECO and leverage. Even though this study is recent, its evidence emanated from a developed economy and findings may be different in developing economies.

Carol, Wei, Sanjaya and Dinithi (2020) investigated the current state of reporting, identified the major motivations and barriers triple bottom line reporting. Their study included an analysis of reporting practices in 48 sub-Saharan African countries using the lens of New Institutional Economics. It comprises three phases of data collection and analysis: presentation of overall reporting data collected and provided by Global Reporting Initiative (GRI). Analysis of stand-alone sustainability reports using qualitative data analysis and interviews with key report producers. Findings show there are significant barriers to reporting but institutional mechanisms, such as voluntary reporting frameworks, provide an important bridge between embedding informal norms and changes to regulatory requirements. These are important for the development of better governance and accountability mechanisms. The use of interview method for data gathering raises concerns on the reliability of findings. Therefore this study results are only preliminary and provide a basis for further work.

Ifeanyi, Azubike and Lormbagah (2020) studied effect of triple bottom line reporting on the financial performance of listed Oil and Gas firms in Nigeria. This study adopted Ex-post facto research design with content analysis approach. The secondary data collected from 5 listed oil and gas firms on Nigeria stock exchange from 2012 – 2016 was analyzed using multiple OLS regression technique. The findings revealed that social disclosure has no significant effect on return on asset of listed Oil and Gas firms in Nigeria. Further finding revealed that economic disclosure has no significant effect on return of assets. This study is criticized for its failure to examine the influential factors of triple bottom line reporting.

Hosom, Eko, Salsabila and Collins (2019) studied the impact of corporate social responsibility disclosure and board characteristics on corporate performance. The population of the study was the global energy corporations which are the top two hundred and fifty corporations in the world for a year period of 2016, 2017 and 2018. In order to find out the impact, the study employed a quantitative method using secondary data collection and analyzed data using smart partial least squares (PLS). The results revealed that the impact of corporate social responsibility disclosure on corporate performance is not significant. Accordingly, the board size and gender diversity have a significant impact on corporate performance. The study scope of three years may not be wide enough to draw valid conclusions.

Numerous investigations have tried to reveal the relationship between Board's attributes and performance, yet no consensus has been reached. This includes the studies by Hosom, Eko, Salsabila and Collins (2019), Ifeanyi, Azubike and Lormbagah (2020), Carol, Wei, Sanjaya and Dinithi (2020), Sandira, Dinesh and Oren (2020), and Alotaibi (2020).
The divergent views held by the reviewed literatures created a lacuna which this study tends to fill. In an attempt to closing the periodic gap, the fiscal year of this study was extended to 2023 contrary to prior studies with 2022 periodic scope. More so, the predominant focus of previous studies has been on financial performance while this present study concentrated on environmental disclosure, thereby, bridging the variable gap in literature (to the best knowledge of the researcher).

3. MATERIAL AND METHODS

This study employed *"ex-post facto"* research design, as the researcher examines past events which the researcher cannot change or alter. Moreover, content analysis was adopted in this study. A content analysis was performed on the sample environmental reports to study how organizational boundaries are set for the whole report and how operational boundaries are set for specific environmental indicators. The population of this study comprised of twelve (12) listed oil and gas firms; three (3) oil and gas companies listed on Ghana stock exchange and the nine (9) oil and gas firms listed on the Nigerian Exchange (NGX) Group as at 31st December, 2023. No sampling technique was employed since the entire twelve (12) firms that constituted the population size were sampled. These data were obtained from the Nigerian Exchange (NGX) Group, fact books and websites, company annual reports and accounts, and sustainability reports of companies for a period of twelve (12) years, spanning from 2012-2023. Descriptive statistics was utilised to describe the mean, median, standard deviation, kurtosis, skewness, maximum and minimum values of the study variables via E-Views 10 statistical software.

To test for the study hypotheses, this study estimated the following regression equations based on the formulated hypotheses:

$ED_{it} = \beta o + \beta_1 BDSZ_{it} + \mu_{it}$ ……………………….Eqn 1

$ED_{it} = \beta o + \beta_1 BDIND_{it} + \mu_{it}$ …………………….Eqn 2

Where:

βo is the intercept of the regression.

$\beta_1, \beta_2, \beta_{3,} \beta_4, \beta_5$, are the coefficients of the regression

$BDSZ_{it}$ = Board Size of firm í in period t

$BDIND_{it}$ = Board Independence of firm í in period t

í = individual firms (1,2,3...12)

t = time periods (2012, 2009 ... 2023)

μ_{it} = Error term

4. RESULT AND DISCUSSIONS

4.1. Descriptive Statistics

Table 1. Descriptive Statistics of Study Variables (Nigeria)

	ED	BDSZ	BDIND
Mean	0.149167	14.41667	2.000000
Median	0.160000	14.00000	2.000000
Maximum	0.230000	19.00000	3.000000
Minimum	0.010000	10.00000	1.000000
Std. Dev.	0.063168	2.998737	0.738549
Skewness	-0.802134	0.128474	0.000000
Kurtosis	3.071322	1.688535	2.000000
Jarque-Bera	1.289382	0.892982	0.500000
Probability	0.524825	0.639870	0.778801
Sum	1.790000	173.0000	24.00000
Sum Sq. Dev.	0.043892	98.91667	6.000000
Observations	108	108	108

Source: E-Views 10.0 Descriptive Output, 2024

This study considered descriptive statistics (mean, standard deviation, minimum and maximum) for the panels for 108 observations (that is, 9 firms x 12 years). Table 4.1 depicts an average mean of 0.149167 for ED. This implies that on the average the sampled firms in Nigeria report about 14.92% of their environmental performance in their financial statements. The maximum value for environmental disclosure is 23%, minimum of 1% with a standard deviation of 0.0632. On the average, BDSZ stood at 14.41667. The implication is that on the average, the size of board members for the sampled firms is 14, with a standard deviation of 2.9987, a maximum number of directors of 19 and a minimum of 10. The mean value of BDIND stood at 2. The drawn inference is that are at least 2 independent directors amongst the board of directors for the sampled firms. The minimum BDIND stood at 1 while the maximum number of independent directors is 3 and the minimum stood at 1 of the sampled firms under study.

4.2 Test of Hypothesis

4.2.1 Hypothesis I

H_0: Board size has no significant effect on effluent disclosure of listed Oil and Gas firms in Nigeria and Ghana.

H_1: Board size has significant effect on effluent disclosure of listed Oil and Gas firms in Nigeria and Ghana.

Table 2: Panel Least Square Regression Analysis testing the effect of BDSZ on ED

Dependent Variable: ED
Method: Panel Least Squares
Date: 06/17/24 Time: 17:01
Sample: 2012 2023
Periods included: 12
Cross-sections included: 12
Total panel (balanced) observations: 144

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.403025	0.055518	7.259395	0.0000
BDSZ	-0.016095	0.003432	-4.690269	0.0000
R-squared	0.134139	Mean dependent var		0.144167
Adjusted R-squared	0.128041	S.D. dependent var		0.077347

S.E. of regression	0.072225	Akaike info criterion	-2.404259
Sum squared resid	0.740744	Schwarz criterion	-2.363011
Log likelihood	175.1066	Hannan-Quinn criter.	-2.387498
F-statistic	21.99862	Durbin-Watson stat	1.549290
Prob(F-statistic)	0.000006		

Source: E-Views 10.0 Regression Output, 2024

The resultant regression output in table 4.5 proves that the functional relationship between the dependent and independent variables is:

ED = 0.403025 - 0.016095 BDSZ

The implication of the regression model is that a unit increase in BDSZ will cause ED to increase by 1.61% approximately. Table 4.5 also showed that BDSZ is negatively and significantly related with the ED of listed oil and gas firms in Nigeria and Ghana. The beta coefficient of the variable; β_1 = - 0.016095. The slope coefficient indicates that $X_1 = 0.0000 < 0.05$. Thus, a significant but negative relationship exists between BDSZ and ED. As evident in table 4.5, the R^2 is 0.134139. This means that approximately 13.41% of the variations in the sampled oil and gas firms can be explained by BDSZ.

Decision

The overall regression result with P-value = 0.000000 provides a basis for accepting the alternative hypothesis, which states that board size has a significant but negative effect on environmental disclosure of listed oil and gas firms in Nigeria at 5% level of significance.

4.2.2 Hypothesis II

H_{o2}: Board independence has no significant effect on effluent disclosure of listed Oil and Gas firms in Nigeria and Ghana.

H_i: Board independence has significant effect on effluent disclosure of listed Oil and Gas firms in Nigeria and Ghana.

Table 3: Panel Least Square Regression Analysis testing the effect of BDSZ on ED

Dependent Variable: ED

Method: Panel Least Squares

Date: 06/17/24 Time: 17:02

Sample: 2012 2023

Periods included: 12

Cross-sections included: 12

Total panel (balanced) observations: 144

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.240992	0.016545	14.56599	0.0000
BDIND	0.037481	0.006008	6.238456	0.0000

R-squared	0.215115	Mean dependent var	0.144167
Adjusted R-squared	0.209588	S.D. dependent var	0.077347
S.E. of regression	0.068765	Akaike info criterion	-2.502446
Sum squared resid	0.671469	Schwarz criterion	-2.461199
Log likelihood	182.1761	Hannan-Quinn criter.	-2.485686
F-statistic	38.91834	Durbin-Watson stat	1.891030
Prob(F-statistic)	0.000000		

Source: E-Views 10.0 Regression Output, 2024

The following regression equation was obtained from table 4.6:

ED = 0.240992 - 0.037481 BDIND

Using the above model, it is possible to determine the relationship between ED and BDIND. Holding all other factors constant, an increase in one unit of BDIND results into a corresponding increase of 3.75% in ED, this means that a positive relationship exists between the ED and BDIND. The slope coefficient shows that the probability value: $P(x_1=0.0000<0.05)$ is less than the critical P-value of 0.05. This implies that BDIND has a significant relationship with ED at 5% significant level. Results in table 4.6 also indicated that the R-squared for the model is 0.215115, meaning that the independent variable (BDIND) explained 21.51% of the variation in ED. Only 78.49% of variation in ED is not explained by the regression model. The Durbin-Watson value of 1.891030 indicates the absence of serial correlation in the model.

Decision:

The P-Value of the test Prob(F-statistic) = 0.000000 is less than the α-value of 0.05; therefore H_1 is accepted and Ho is rejected. Since the p-value of the test is less than 0.05, then there exists enough evidence to reject the null hypothesis and conclude that Board independence has significant and positive effect on effluent disclosure of listed Oil and Gas firms in Nigeria and Ghana.

CONCLUSION AND RECOMMENDATIONS

This study ascertained the effect of Board attributes on environmental disclosure of listed oil and gas firms in Nigeria and Ghana for a twelve year period covering from 2012-2023. this study revealed that board size has a significant but negative effect on effluent disclosure ($\beta_1 = -0.016095$; p-value = $0.0000 < 0.05$); Board independence has a significant and positive effect on effluent disclosure ($\beta_1 = 0.037481$; p-value = $0.0000 < 0.05$). Conclusively, Board characteristics have mixed effect on environmental disclosure of listed oil and gas firms in Nigeria and Ghana.

The study therefore recommends the following:

1. Board size should be reduced to an average of ten(10) to twelve (12) members in order to overcome the negative effect on environmental disclosure.
2. Board independence should be increased through creativity and innovation in order to manage the relationship between boards and stake holders.

REFERENCES

Abu Seini O., OkpehArimona J, Okpe James (2016): Board Characteristics and financial performance of deposit money banks in Nigeria. *International Journal of business and social science,* 7(9), 20-26.

Aderobaki, V.A., Amahalu, N.N. & Adeniyi, S.I. (2024). Effect of employee welfare and occupational health and safety reporting on audit quality of listed firms in Nigeria, *Journal of Global Accounting*, 10(1), 62 - 74.

Alotaibi (2020): Determinants of sustainability disclosure of Saudi listed companies. *Journal of economics and sustainable development,* 2(2).

Amran A, Lee S. P., Devi S. S (2014): The influence of governance structure and strategic corporate social responsibility toward sustainability reporting quality. *Journal of Business strategy environment* 2014, (23), 217 – 235.

Bukair A, A and Rahma A. A. – (2015): The effect of the board of Directors characteristics on corporate social responsibility disclosure by Islamic banks. *Journal of management research*, 7 (2) 506 – 519.

Carol, A. T., Wei Q., Sanjaya K. & Dinithi D. (2020). The state of business sustainability reporting in sub-Saharan Africa: An agenda for policy and practice. *Sustainability Accounting, Management and Policy Journal*, ahead-of-print no. ahead-of-print DOI: https://doi.org/10.1108/SAMPJ-06-2019-0248

Chen, C., Jaggi B. (2000): Association between Independent non-executive directors, family control and financial disclosures in Hong Kong. *Journal of Accounting and Public Policy* 2000 19, 285 – 310.

Cristina, T. (2024). Effluent. *https://www.wwdmag.com/wastewater-treatment/what-effluent*. Assessed on 14/05/2024

Hosam A.R, Eko G.S, Salsabila A.A and Collins G.M (2019): The impact of corporate social responsibility disclosure and board characteristics on corporate performance. *Cogent business and management*, 6(1)

Ifeanyi I.C, Azubuike J.U and Lormbagah J.A (2020): Effect of triple bottom line reporting on the financial performance of listed Oil and Gas firms in Nigeria. *International Journal of Management studies and Social Science research* IJMSSSR 2021,2(2), 2582-0268

Jensen & Meckling, W. H. (1976): Theory of the firm managerial behaviour, agency costs and ownership structure. *Journal of financial economics*, 3(4), 305 – 360.

Mahmood, A, Kouser R, Waris A, Amad A, Salaman T. (2018). Does corporate governance affect sustainability disclosure? A mixed methods study. *Sustainability journal*, 10(207).

Nguyen, V.C., & Huynh, T.N. (2023). Characteristics of the board of directors and corporate financial performance: Empirical evidence. *Economies 11*, 53.

Ofoegbu G.N, Odoemelam N., Okafor R.G (2018): Corporate board characteristics and environmental disclose quantity. Evidence from South-Africa (Integrated reporting) and Nigeria (traditional reporting). *Cogent Business and management* (2018)5.155181 doi. Org/10.1080/23311975. 2018. 1551510.

Tuser, C. (2024). Effluent. *https://www.wwdmag.com/wastewater-treatment/what-effluent*. Assessed on 14/05/2024.

Ubeh, P.C., Okoye, E.I., Nwoye, U.J. & Amahalu, N.N. (2024). Board Diversity and Financial Leverage of listed Commercial Banks in Nigeria (2012 - 2022), *Journal of Global Accounting*, 10(1), 75 – 94.

