Environmentally Sensitive Industries Attributes and Environmental Disclosure in Nigeria: Modelling the Double Hurdle Technique

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Abstract

The environmental damages firms' activities have caused, has aroused the need for firms to be very sensitive to their operations. The 2011–2020 research examines firm-specific features and corporate environmental disclosure for listed environmentally sensitive firms in Nigeria. Age, size, leverage, and management ownership are the explanatory variables. Environmental disclosure explains the GRI environmental disclosure index. The research assessed corporate involvement in environmental disclosure using double hurdle regression. The population and sample are all 23 Oil & Gas and Industrial Goods firms. The research found that firm size and financial leverage influence disclosure choice and extent of disclosure. Firm age does not affect disclosure choice or intensity. The study proposes that Nigerian corporations should give detail disclosure of environmental information. It should be a listing requirement for companies. This promotes green accounting. As captains of industries, managers should push environmental policies that improve their environmental performance to better align the organisation and its stakeholders.

Keywords: Firm attributes, environmental disclosure, double hurdle regression

1.1 INTRODUCTION

Businesses' environmental damage has sparked the need for environmental commitment. The 1984 gas leak at Union Carbide India Limited (UCIL) in Bhopal, Madhya Pradesh, India, the 1989 Exxon Valdex tragedy in Alaska, and the 2010 Deepwater Horizon oil spill are examples (Okpala, 2019). Multinational resource mining in Nigeria's oil-rich Niger Delta has caused multiple conflicts.

Vision 2020 confirms environmental issues. The Vision 2020 Committee, which was created to guide Nigeria to the top 20 economies by 2020, recognised that the country faces environmental issues like severe gully erosion in the Eastern and Northern states, continued exploitation of marginal lands, drought and desertification in the North, and uncontrolled logging. 2017 (Nabegu, Mustapha, Naibbi) (Nabegu, Mustapha, Naibbi). Nigerians talk about environmental

protection but accomplish nothing. The worst aspect is that the Central Government of Nigeria maintains charging oil and gas sector operators to develop Nigeria's natural gas resource (Obas, 2021) without taxing the operators or restoring the environment.

Why did Niger Delta and Nigerian industrial enterprises fail? Could these companies' African operations still follow Milton Friedman's business-is-business philosophy? implying firms shouldn't worry about the environment. Do they think they're irrelevant because they pay taxes?

Egbunike and Tarilaye (2017) state that stakeholders expect environmental and social responsibility due to companies' environmental effect. The Global Reporting Initiative (GRI) and International Integrated Reporting Council (IIRC) were founded in 1997 and 2010 respectively. Business Environmental Disclosure (CED) strategies should promote corporate environmental performance and green image..

Several empirical research have been done on firm attributes that encourage companies to disclose their environmental policies (Baalouch, Ayadi & Hussainey, 2019; Egbunike & Tarilaye, 2017; Ohidoa, Omokhudu & Oserogho, 2016; Omoye & Wilson-Oshilim, 2018; Kipngetich, Tenai & Bonuke, 2019). Most of these studies' conclusions are inconsistent and conducted with single-hurdle approach. Benjamin, Okpanachi, Nyor, and Muhammad (2017) found research gaps. Effiok and Etom (2013) reported a variable limitation gap, while Uwigbe identified a temporal scope gap (2011). This trend helps us identify Benjamin et al. (2017) time scope and methodological gaps.

Our analysis uses more recent data from 2011 to 2020 for ESI businesses, while Benjamin's study covers 2000 to 2015. Their research didn't look at company choices to engage in environmental disclosure and the extent of their involvement in Nigeria. This research covers the gap by applying the GRI standard that their study missed while extracting the disclosure index item. The research aims to analyse firm-specific characteristics and environmental disclosure using double-hurdle regression.

2.1   LITERATURE REVIEW

Conceptual Review
Environmental Disclosure Practices

Corporate social and environmental disclosure, sustainability report, triple bottom line (3BL), corporate environmental report, and currently referred to as environmental, social, and governance (ESG) report are all terms used interchangeably to describe an environmental disclosure that is a subset of the sustainability report. Regardless of the many designations, social and environmental reports or disclosures are an umbrella term that captures the numerous methods in which companies reveal information about their social and environmental activities to those who are interested in their financial report (Alok, Nikhil & Bhagaban, 2008; GRI, 2011; Akinlo & Iredele, 2014).

Firms Attributes

Firm attributes are those peculiar characteristics that firms possess that give them some advantages over their competitors. These attributes are sometimes used as parameters for an investment choice. Firm attributes can take the form of structural, market, and capital-related firm characteristics. From the structural form, these attributes include firm size, earnings, liquidity, leverage, and age. However, such characteristics are still necessary parameters but inexhaustible in contemporary investment analysis.

Firm Age

In determining a company's age, we look at how long it's been in operation and how many years ago it was founded. To understand how long a publicly traded company has been in operation, consider how long it has been listed on the stock market database of the country where it is headquartered (Mgeni & Nayak, 2016).

Firm Size

From the stakeholder theory viewpoint or nexus, larger firms have more stakeholders compared to smaller firms. This birth the need why larger firms need to have more disclosures to meet the interest of the varying stakeholders. By measurement, the natural logarithm of the total assets of the firm are equated to the size of the firm (Uwuigbe, 2012; Yahaya, 2017)

Firm Leverage

According to Aliu (2010), the sensitivity of stock ownership's value to changes in the underlying company's value constitutes leverage. That is the company's financial liabilities mix. Leverage is also explained as the debt (from a creditor or preferred stockholders) a company employs to fund its assets. As a result, it indicates the amount of debt utilised in the company's capital structure. Also, disclosing the firm's leverage position under any environmental sustainability policies by management will be an added advantage for the firm to gain trust from stakeholders, which could also positively affect the firm financial performance.

Environmental Disclosures in Developing Countries

Due to rising economies' demand for mandatory disclosure, developing nations are conducting more social and environmental disclosure research than developed ones (Belal & Cooper 2011; Belal & Owen 2007). In India (Pramanik, Shil & Das, 2009; Sahay, 2004), Malaysia and Singapore (Mohammed & Tamoi, 2006; Yusoff & Lehman; Dasgupta (quoted in Moshud, 2020)), Korea, and China, Lu and Abeysekera (2014); Zeng, Xu, Dong, and Tam (2010) have conducted research. Environmental disclosure in East Asia is inadequate compared to Western countries, and environmental restrictions are controversial. Social and environmental transparency is unusual in Africa. Ofoegbu and Megbuluba (2016), Ogoun and Ekpulu (2020), and Kisenyi & Gray (1998) were conducted in Nigeria. A new methodological approach is needed to study this disclosure level.

2.2 Theoretical Review

This study is anchored on stakeholders' theory

Stakeholders Theory

Stakeholder Theory emphasises how a company's consumers, workers, investors, suppliers, communities, and other stakeholders interact. According to the notion, all stakeholders should care about a company's value creation.

In 1984, R. Edward Freeman introduced the Stakeholder Theory of organisational management and corporate ethics, which addresses morality and values in management. Freeman, A. B. (1983). Stakeholder management is divided into two areas by Freeman (1983): business planning and policy and corporate social responsibility. Environmental disclosure is exemplified by the latter.

The Double-Hurdle Model

Cragg's (1971) double-hurdle model states that an individual's choice to participate in an activity is based on two steps: determining whether they are a zero type and measuring their degree of involvement if they are not.

Engel and Moffatt (2014) believe the double-hurdle model has been used in numerous scenarios. Jones (1989) applied it to smoking. Burton, Tomlinson, and Young (1994) modelled meat consumption. The model has also been used in loan default models (Dionne, Artìs, and Guillèn 1996; Moffatt 2005). Tesfay (2020) used the double hurdle model to analyse the determinants affecting inorganic fertiliser use and smallholder commercialization. Nigerian family planners Adeyemo and Salman (2016) used the twofold hurdle concept. Jamani, Ekundayo, Odhigu (2021). Controlled for corporate governance while evaluating environmental disclosure modelling in a developing economy. Corporate reporting underutilizes the Cragg model.

2.3. Empirical Review and Hypothesis Development
2.3.1 **Firm Size and Corporate Environmental Disclosure**

Over the decades, many studies have examined how corporate size affects environmental disclosure. Most research show a favourable association between corporate size and environmental disclosure in developing and developed nations (Hossain, Islan & Andrew, 2006)

Ndukwe and Onwucheka (2015) analyse environmental disclosures in Nigerian listed oil and gas businesses. The cross-sectional research explored how business size, leverage, profitability, and audit firm type affected environmental disclosures in 15 corporations from 2008 to 2013. Binary regression analysed the data. The analysis found a strong correlation between firm size and CSR declarations. Onyali and Okafor (2018); Egbunike and Tarilaye (2017); Ahmad (2017); Benjamin, Okpanachi, Nyor, and Muhammad (2017); Ohidoa, Omokhudu, and Oserogho (2017) found similar results (2016). Lu and Abeysekera (2014); Zeng, Xu, Dong, and Tam (2010); Galani, Gravas, and Stavropoulos (2012); and Chek, Zam Zuriyati, Nordin Yunus, and Norwani (2013) found a positive significant association with data from outside Nigeria.

Ofoegbu, Odoemelam, and Okafor compared the two (2018). The paper explores how corporate board characteristics affect environmental disclosure amount of listed businesses in two important African rising countries, South Africa and Nigeria, which use integrated and conventional reporting frameworks, respectively. As a control variable, business size had no detrimental influence on environmental disclosure in both nations. In Spain, Prado-Lorenzo, Gallego-Alvarez, and Garcia-Sanchez (quoted in Umoren, Isiavwe-Ogbari & Atolagbe, 2016) found no correlation between corporate size and social disclosures.

After careful observation of the methodology applied among these studies, it is clear that most of the studies applied a binary regression technique due to the dichotomous nature of the data tested, which probably may be unconnected with some level of voluntary disclosure allowed in those climes. Also, studies observed could not demonstrate a unanimous position on firm size and CED. Its on this premise that the underneath hypothesis is developed;

H_{01}: Firm size has no influence on how listed businesses disclose their environmental actions

2.3.2 Firm Age and Corporate Environmental Disclosure

Age may improve company efficiency. Firms discover their strengths and improve through time. They standardise, coordinate, and speed up production to minimise costs and improve quality. Older firms should have a competitive, strategic, and imaginative edge over younger ones, which should also strengthen their business leadership advantages (Ogoun & Ekpulu, 2020).

Egolum, Amahalu, and Obi (2019) study how business characteristics affected corporate environmental performance from 2008 to 2017 in Nigerian listed industrial products companies. At 5% significance, company age significantly affected environmental performance (as measured by waste management costs). Onyali and Okafor (2018); Benjamin, Okpanachi, Nyor, and Muhammad (2017); Kabiru (2020); Innocent and Gloria (2020) found similar results (2018)

The preceding research investigates environmental disclosure utilising GRI as a content analysis index to solve one environmental disclosure problem. The study's excellent. However, as Nigerian enterprises are currently functioning at a voluntary disclosure level, it is necessary to determine the firm's disclosure choice and extent within the present voluntary period. Our study relies on this method.

Nguyen, Tran, Nguyen, and Le (2017) examined Vietnam's construction firms' environmental accounting information disclosure outside Nigeria. The New York Stock Exchange collected data from 74 Vietnam Stock Exchange-listed construction companies from 2013 to 2016. The data indicate that construction businesses are disclosing more environmental accounting information, notably in 2016, and that company age increases disclosure. Yousra (2017) and Khalid, Kouhy, and Hassan (2017) found a substantial negative connection with environmental information dissemination. The contradictory results and non-application of the hurdle model lead to the second hypothesis.

H_{02}: Firm age has no influence on how listed firms disclose their environmental actions

2.3.3 Firm Leverage and Corporate Environmental Disclosure

High-debt firms should boost social activities and give environmental information to satisfy creditors' environmental concerns. Creditors worry about how borrowed money is used to produce green products and increase the company's return on invested capital or liquidity/solvency.

Toluwa, Okun, and Ikhenade (2015) explore Nigerian environmental disclosure variables. Binary logistic panel data regression suggests company leverage does not affect environmental disclosure. Nigerian binary regression by Ndukwe and Onwucheka (2015) revealed no significant relationship between leverage and CSR submissions. Ahmad (2017) and Uwigbe (2016) found comparable findings.

Egbunike and Tarilaye (2017) analyse how firm size, leverage, earnings, and governance affect voluntary environmental disclosure from 2011 to 2015. Statistics comprised descriptive and inferential. All assumptions proved positive. Aluwong and Fodio (2019), Benjamin, Okpanachi, Nyor, and Muhammad (2017), and Kabiru (2019) reported similar leverage findings (2020). Hossain, Islam, and Andrew (2006); Juhmani (2014); Sulaiman, Abdullah, and Fatima (2014); and Zhang reported comparable findings (2013). No study used the obstacle model to environmental disclosure, despite inconsistent results. This gap inspires the third theory.

H_{03}: Firm leverage has no influence on how listed firms disclose their environmental actions

3. METHODOLOGY

This study uses ex-post facto research. The study's data—repeated observations of the same variables across time—determines the design. The double-hurdle model was used to examine how corporate factors affect environmental disclosure procedures. The population and sample are all 23 NGX Oil & Gas and Industrial Goods firms as of 2020. Study data is secondary. The data comes from the 2011–2020 audited annual reports of Nigerian Exchange Group listed firms

Also, prior studies formed the justification for this model, however with modification, specifically, in respect to the estimation method used (Ohidoa, Omokhudu & Oserogho, 2016; Omoye & Wilson-Oshilim, 2018; Baalouch, Ayadi & Hussainey, 2019; Ekundayo, Jamani & Odhigu, 2021).

The linear form of the model is presented in the econometric form:

$$EVD_{it} = \lambda_{it} + \lambda_1\ FAGE_{it} + \lambda_2\ FSIZE_{it} + \lambda_3 LEV_{it} + \lambda_4\ MANAG_{it} + \varepsilon_{it}$$

Where: EVD = Environmental disclosure; FAGE = Firm age; FSIZE = Firm size; LEV = Leverage; and MANAG = Managerial ownership. λ_{it} = Intercept of each cross-section; λ_1 to λ_4 = Unknown coefficient; i = Firm (1-23); t = time (1-10 years); ε_{it} = error term. The Double hurdle model is explained in Cragg (1971).

Operationalisation of Variables

Environmental disclosure was measure in two processes: For the first hurdle, environmental disclosure is proxy by dummy variable measure of 1 if firm discloses and 0 if otherwise; for the second hurdle, it is proxy by generating an index score (either in ratio or integer form) based on the GRI benchmark (Ndukwe & Onwucheka, 2015; Ezhilarasi & Kabra, 2017). The natural log of a company's total assets is used to determine its size (Egbunike & Tarilaye, 2017). A company's "age" is calculated as the number of years since its founding (or listing) year (Omar, 2014; Ahmad, 2017). Total debts divided by total assets is the formula for calculating leverage (Uwigbe, 2011). The amount of shares held by firm management is one indicator of managerial ownership (Dian, Wiwiek & Dwi, 2018).

4.   DATA ANALYSIS AND DISCUSSION OF FINDINGS

Descriptive Statistics

Table 4.1: Descriptive Statistics

	ENV	FAGE	FSIZE	LEV	MANAG
Mean	0.1976	32.192	16.5438	0.6453	23.001
Maximum	0.8824	69.000	21.428	2.9941	97.030
Minimum	0.0000	0.000	8.4585	0.0229	0.00
Std. Dev.	0.2050	17.557	2.6101	0.40232	25.518
Jarque-Bera	182.9	7.4288	5.6844	955.202	41.398
Probability	0.000	0.0244	0.0583	0.00	0.000
Obs	230	230	230	230	230

Source: Researcher's Compilation (2022)

Descriptive statistics for the study variables in terms of the ESI are presented in the table up top. By using an environmental disclosure checklist, the study found that ESI companies disclosed, on average, just around 20% of their ENV. The maximum and minimum values were 88% and 0%, respectively. The standard deviation is rather high at 0.2050, which is quite away from the average. This may indicate that ESI companies' environmental transparency is lacking. Firms in the ESI sector had an average age of 32 years, ranging from 69 years high to 0 years low. The standard deviation is rather large, coming in at around 17.55 standard deviations. For ESI businesses, the median value of the log of total assets was 16.5458, with extremes of 21.428 and 8.46. The 2.61 standard deviation from the mean demonstrates a low dispersion level, making the dispersion level a more trustworthy indicator of overall central tendency. Average LEV for ESI was 0.645, with a range from -0.0229 to -2.994. As a control variable, the mean for MANAG was at 23.001 for ESI, which suggests that the average managerial ownership in ESI enterprises is 23% with maximum and minimum values of 97.030% and 0.00% respectively.

Correlation Statistics

Table 4.2. Correlation Statistics

	ENV	FAGE	FSIZE	LEV	MANAG
ENV	1				
FAGE	0.0157	1			
(Prob)	(0.8038)				
FSIZE	0.4923***	0.1436**	1		
(Prob)	(0.000)	(0.0299)			
LEV	-0.1006	0.1901***	-0.1285	1	
(Prob)	(0.129)	(0.0039)	(0.0521)		
MANAG	-0.0840	-0.2738***	-0.0508	-0.0128	1
(Prob)	(0.2045)	(0.000)	(0.4445)	(0.8471)	(0.7525)

Source: Researcher's compilation (2020) *** sign@1%, ** sig@5% and * sig@10%

The sub-focus of the investigation is the associations between environmental disclosures (ENV), the dependent and independent variables, as shown in Table 4.2. The data show that there is a positive relationship between ENV and FAGE (r=0.0165), however it is not statistically significant (p=0.8038). The positive connection between ENV and FSIZE (r=0.490) is statistically significant (p=0.000) at the 1% level, suggesting that an increase in the size of the firm would yield to an increase in ENV. The correlation between ENV and LEV is negative (r=-0.1006) but not statistically significant (p=0.129). While the inverse relationship between ENV and MANAG is seen (r=-0.0881), it is not statistically significant (p=0.2045).

Double Hurdle Regression

Table 4.3: Double Hurdle Regression Result for ESI firms

Variable	Probit Model	Tobit Model	Double Hurdle Model	
			Ist Hurdle	2nd Hurdle
C	-3.6253*** (0.7199) {0.000}	-0.7102*** (0.1138) {0.000}	-3.625333 (.719885) {0.000}	-.5916697*** (.2603795) {0.023}
FAGE	-0.00819 (0.0065) {0.208}	-0.0011 (0.009) {0.211}	-.0081885*** (.0064995) {0.208}	.0013951* (.0015038) {0.354}
FSIZE	0.2708*** (0.0439) {0.000}	0.05447*** (0.0063) {0.000}	.2707769*** (.0439033) {0.000}	0.6437*** (.0128618) {0.000}
LEV	0.5673** (0.2581) {0.028}	0.02535 (0.0419) {0.546}	.5672579*** (.2581454) {0.028}	-.2389688*** (.1192232) {0.045}

MANAG	-0.0064* (0.0038) {0.089}	-0.0008 (0.0006) {0.225}	-.0064293* (.0037824) {0.089}	.0008* (.0011) {0.475}
Mean VIF			4.876	
Log Likelihood	-105.76	-28.359	3.152	
LR chi2(6)	79.88	79.88	107..84	105.08
Prob> chi2	0.000	0.000	0.000	0.000
Pseudo R2	0.1978	0.585	0.7801	
LR chi 2(6)[overall]			107.90868 (0.000)	

Source: Researcher's compilation (2022) Standard error ( ) p-values { }. Also, *** sign@1%, ** sig@5% and * sig@10%

The Probit, Tobit, and Double-hurdle models, calculated using panel data spanning the years 2011 through 2020, are shown in Table 4.3. In contrast to the double hurdle model, the probit and Tobit models are preliminary, limited, or confined models. The fact that many companies often assert a zero disclosure of environmental information in their annual reports in Nigeria is a recurring issue with regard to environmental disclosure data. Since there are often no negative values or lower limits below zero, the data for such distributions are frequently filtered at zero. Biased and inconsistent estimates are the consequence of failing to clearly recognise this suppressed or shortened distribution of data. The Tobit regression (Tobin, 1958), which assumes that the distribution of values is truncated at zero, has often been employed to solve this problem, since it often addresses the shortcoming of the Probit estimate. A corner solution is the only kind of zero observation that the Tobit model permits. But once again, the Tobit model fails to analyse the elements that may increase or decrease a firm's likelihood of disclosing. The Double-Hurdle model is the outcome of this. The benefit of a double hurdle model is that it incorporates two distinct processes, in this example, the choice of whether to disclose (probit/Tobit) and the amount of disclosure, into a single model (OLS equation).

The independent double-hurdle model offers a helpful framework within which to depict the influence of numerous variables due to the two-stage structure of the decision to disclose and the amount of disclosure. The coefficients in the first hurdle, which are a function of the several option factors, show the likelihood or potential (probability) of disclosing environmental information. We are able to account for the decision to release environmental information via this filtering mechanism since it is fundamentally non-standard and motivated by a firm-specific reason. The second group goes into depth on how various aspects of the decision-making process impact the degree of openness. The first hurdle result reveals that the coefficient of FAGE is negative and negligible (-0.0899, p=0.208), suggesting that given the length of their existence, businesses are less likely to engage in environmental disclosure. As the variable is minor (p=0.354) and positive, there is no evidence in the second hurdle that the businesses' age makes them more likely to provide excellent disclosure of their environmental activities (0.0013).

With a coefficient and P-value of (0.6437, p=0.000) in the second hurdle, FSIZE is likewise positive (0.2707) and statistically significant at 1% in the first hurdle. This shows that the likelihood of participating in the disclosure and its scope increases with the size of the company. The first hurdle's LEV coefficient is positive and significant (0.5672, p=0.025),

suggesting that firm leverage affects the likelihood that companies would disclose environmental information in annual reports. Despite having a substantial (p=0.045) P-value, the variable was unable to favourably (-0.2389) affect the quantity and, therefore, the quality of such disclosures in the second hurdle. In other words, given their level of power, businesses are less likely to share accurate environmental information. The first hurdle's negative and 10%-significant coefficient of MANAG (-0.0064, p=0.084) suggests that management ownership has no effect on whether or not companies disclose environmental information in annual reports. However, in the findings of the second hurdle, MANAG has a favourable and negligible impact on the degree of disclosure (0.0008, p=0.47).

The diagnostic result on multicollinearity using the VIF shows that the explanatory variables is not having a multicollinearity challenge as the VIF is below 10 (VIF=4.876). By this result, the individual effect of the independent variables on the dependent variable is not hampered. Above all, the model is very significant as the Prob> chi2 is less than 5% (0.000) for both hurdles.

Discussion of Results and Test of Hypotheses
Firm age and corporate environmental disclosure
The first hurdle estimation's outcome reveals that the FAGE coefficient is negative and negligible, suggesting that company age does not substantially affect the likelihood that businesses would disclose environmental information in annual reports. Additionally, the second hurdle estimate shows that the FAGE impact is not significant with a positive coefficient, proving that FAGE is not a major factor in either the choice to reveal or the extent/quality of disclosure. Therefore, the null hypothesis that $H_{01:}$ that Firm age does not influence corporate environmental disclosure of firms listed in the NGX is accepted. This implies that the age of firms in the environmental sensitive industries do not determine their participation choice and the depth of participation in environmental disclosure. This further portray that both new and old firms that their activities have an adverse effect on the environment is not perturbed about the environmental information of their operations. This attitude may be unconnected with the voluntary disclosure requirement permitted in Nigeria. This finding contradicts the findings of Egolum, Amahalu and Obi (2019); Onyali and Okafor (2018); Benjamin, Okpanachi, Nyor and Muhammad (2017); and Kabiru (2020), but support the findings of Yousra (2017); Khalid, Kouhy, and Hassan (2017); and Akbaş (2014).

Firm size and corporate environmental disclosure
The first hurdle estimate result demonstrates that the coefficient of FSIZE is positive and significant at, suggesting that company size increases the likelihood of corporations revealing environmental information in annual reports. The second hurdle calculation shows that the FSIZE impact is similarly significant at 1% with a positive coefficient, indicating that FSIZE is an important factor in determining both the choice to disclose and the extent/quality of disclosure. Because of this, the null hypothesis $H_{02:}$—that company size has no effect on corporate environmental disclosure of businesses listed on the NGX—is rejected. It is clear from the data that when enterprises increase in total assets, they tend to react favourably to environmental concerns by revealing information about their environmental actions. This is because huge corporations are believed to draw public scrutiny and attention. This result is in

tandem with the study of Ndukwe and Onwucheka (2015); Onyali and Okafor (2018); Egbunike and Tarilaye, (2017); Lu and Abeysekera (2014); Zeng, Xu, Dong, and Tam (2010); and Benjamin, Okpanachi, Nyor and Muhammad (2017). However, according to Benjamin et al. (2017), the study contradicts those by Hussain, Islam and Andrew (2006); and Prado-Lorenzo, Gallego-Alvarez and Garcia-Sanchez (as cited in Umoren, Isiavwe-Ogbari & Atolagbe, 2016).

Firm financial leverage and corporate environmental disclosure

The initial hurdle estimate result demonstrates that the LEV coefficient is substantial and positive. Additionally, although having a negative coefficient, it often tends to be significant in the second hurdle estimate. Therefore, it is determined that **H_{03}**: that Firm financial leverage does not affect Corporate Environmental Disclosure of Firms Listed in the NGX is false. This further shows that although an increase in corporate financial leverage may enhance the likelihood of ESI enterprises engaging in environmental information disclosure, it does not always mean that the degree of disclosure will also increase. The outcome also shows that leverage is a key factor in determining whether and how much people participate in environmental disclosure at both obstacles. Our results somewhat disagree with those of Yousra (2017), Ohidoa, Omokhudu, and Oserogho (2016), and Uwigbe (2011), which demonstrate that company leverage has little to no impact on environmental disclosure. However, our results significantly concur with those of Kabiru (2020), Benjamin, Okpanachi, Nyor, and Muhammad (2017) as well as Egbunike and Tarilaye (2017).

5. Conclusion, Policy Implications and Recommendations

From the study findings, after examining the study objectives, we concluded that the age of firms with high industrial operations that could have impact on the environment, do not influence significantly, their choice to disclose and the depth of disclosure in a voluntary disclosure environment like Nigeria. On the contrary, we concluded that the size of firm and the firm financial leverage are significant determinants of firm's choice to disclose and the extent of disclosure. As firms grow, they strive to protect their image and reputation built over the years by becoming more sustainable and environmentally friendly in their operations. Also, as firms increase their leverage position within their capital structure, there is a possible increase in their sustainability practice which further create an enabling and non-hostile environment for business growth.

The finding from the study would be of greater importance in developing policies that will enhance the operation of sustainability practices among firms in Nigeria. By this view, the government should make environmental disclosure mandatory for firms in Nigeria. It should also be part of the requirements for firms to be listed or maintain their listing. This will help to promote green accounting practices. The study recommends that managers, as captains of industries, use their position to drive environmental policies that would enhance their environmental performances so as to create better alignment between the firm and the stakeholders.

Further studies can look into the entire non-financial sector using the double hurdle model as this study purposively sample 23 firms from the Oil and Gas, and Industrial goods sector. This can be done using the same variables or different explanatory variables. Also, further research can research on corporate governance attributes such as board composition and ownership structure. This can be examined in relation to how it can influence the level of CED in any suitable sector in Nigeria.

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