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ASSESSING THE IMPACT OF FIRM ATTRIBUTES ON ENVIRONMENTAL DISCLOSURE OF LISTED INDUSTRIAL GOODS COMPANIES IN NIGERIA

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Abstract

The study examines the impact of firms' attributes on environmental disclosure of listed industrial goods companies in Nigeria using an annual panel dataset from 2014 to 2022. The study used fixed effect regression and the result reveals that there is no significant relationship between asset tangibility, profitability and environmental disclosure while there is positive and statistically significant relationship between Managerial ownership and environmental disclosure of listed industrial goods companies in Nigeria. The study recommends that, regulatory authorities should re-strategies and see how the firm will improve managerial ownership to increase environmental disclosure policies and make environmental disclosure a requirement for listing into the floor of Nigerian Exchange Group (NGX) also industrial good companies should strategize their shareholding policies by encouraging managerial shareholding this will boost their reputation and goodwill.

Keywords: *Environmental disclosure, Asset tangibility and Managerial ownership.*

INTRODUCTION

Industrialization globally and particularly in Nigeria, generates enormous amounts of hazard which are harmful to the habitants and environmental sustainability (Deinkuru, et al., 2021). The world is currently producing more trash than it can handle such as leftover fertiliser, toxic chemicals, plastics, among others which are polluting the environment and capable of damaging the ecosystem.

The adverse effects of economic development are not only prevalent in the developed nations but also in the developing economy. For instance, in 2020 and 2021about 28,000 barrels of oil spewed into the environment in the Niger Delta region of Nigeria which directly impacted negatively on their farmlands and the host communities, resident have reported myriad health issues in addition to lowering their regional life expectancy rate by 10years, against the countries national average of 51 years old. (Deinkuru et al., 2021).

Furthermore, cement industries are largely responsible for deteriorating environment among the industrial goods companies operating in Nigeria due to the involvement of heavy machineries and equipment in the production processes. Notably, limestone mining in Ewekoro, Ogun State has resulted in converting farmlands into quarry sites which resulted in loss of vegetation and means of livelihood to the host communities in addition to the danger pose by the mining activities (Olawain 2023).

Shuaibu (2020) opined that, companies whose operations have effect on the environment should disclose their financial commitments toward environmental improvement and sustainability. In line with the foregoing, there are growing concerns of the diverse group of stakeholders imposing a severe pressure on the management of industrial goods companies to operate in an environmentally friendly and responsible manner and disclose all information related to their environmental performance. In this way, companies are no longer regarded as production and marketing units intended to achieve only financial profit, but rather as entities serving social progress as well as the welfare of all group of stakeholders (Akbas, 2014; Shuaibu 2020 & Zayol, et al., 2021).

The requirement for business organizations to include social and environmental accounting information in their annual reports is becoming an increasingly popular subject. Although, is still not mandatory in Nigeria for the businesses to disclose environmental information in their annual reports and accounts unlike countries such as United State of America (USA), Denmark, Netherland, Australia, France, South Korea, Sweden, United Kingdom (UK) and Germany where it is mandatory to report environmental information in the annual report and accounts. Also in Africa, the Johannesburg (South Africa) stock exchange place environmental disclosure as a requirement for listing meanwhile it remains voluntary in Nigeria (Salawu et al., 2021; Zoyol et al., 2021).

There are several studies conducted in Nigeria related to the topic. However, most of these studies focused on oil and gas sectors and agro allied companies Iyoha, and Igbinovia (2023); Wahab et al., (2022); Chukuemeka et al., (2021); Olurankinse and Mamidu (2021) to mention a few. Nevertheless, the studies of Shuaibu et al., (2023); Okoba and Chukwu (2023) are among the recent studies that used industrial goods companies in Nigeria. However, Okoba and Chukwu (2023) study's wasn't on environmental disclosure and they did not use panel estimation techniques either. Furthermore, the study of Shuaibu et al., (2023) is specifically on segment of environmental disclosure which is waste disposal cost disclosure (WDCD) while the current study will fill the gap to examine the impact of firm attributes on environmental disclosure. The rest of the paper is as follows: Section (2) provides the literature on firms' attributes and environmental disclosure. Section 3 presents methodology of the study. Section 4 presents results and discussion while section 5 discuses conclusions and recommendations.

LITERATURE REVIEW

Zou and Stan (1998) described firm attributes as a firm's demographic and managerial variables which, in turn, comprise part of the firm's internal environment. According to Kogan and Tian (2012), firm attributes include firm size, profitability, Managerial Ownership, liquidity, firm growth, asset growth and Turnover among others. These attributes in business pertain to brands or products, companies and even employees. They can be best described as certain underlying attributes that best represent all the firm characteristics that identify and keep track of key attributes know where they stand versus key competitors. The attributes of companies that produce high environmental impacts demand high fulfillment of environmental responsibilities (Paramitha & Rohman, 2014). Hence these attributes play a significant role in creating a creating a competitive advantage which is very essential in this ever-changing environment.

Managerial ownership is the extent to which individuals within a company's management hierarchy hold shares in the firm. It is commonly expressed as a percentage of total shares outstanding and is considered a crucial indicator of the alignment of managerial and shareholder interests (Jensen & Meckling, 1976). Higher managerial ownership implies a greater stake in the company's success and potential for enhanced commitment to shareholder value.

Managerial ownership refers to company insiders' ownership of shares in the firms they manage (Jensen & Meckling, 1976). The percentage of equity owned by executives and directors represents their financial stake in the organization. Managerial ownership aligns insider wealth with company performance. This attribute may influence corporate social responsibility and disclosure. The concept of managerial ownership is rooted in agency theory, which addresses the potential conflicts of interest between managers and shareholders. Jensen and Meckling (1976) argue that managerial ownership serves as a mechanism to mitigate the principal-agent problem, aligning the interests of managers with those of shareholders by making managers shareholders themselves.

Companies with managerial ownership tend to be more environmentally responsible and legitimate in their operation. when management have a significant positive ownership stake in the firm, their personal interests become more closely aligned with those of the shareholders, which can lead to a greater focus on long-term sustainability and environmental performance that can reflected in increased environmental disclosure. (Wahyuningrum et al., 2022; Ikaet al., 2021; Kipngetich 2020; & Ponsian et al., 2021)

Tangible assets are those assets that possess physical features which may include plant, equipment and machineries (Duhu 2022; Akenroye et al., 2022) Irungu, et al., (2018) posit that management ability to effectively and efficiently mix tangible and in intangible asset will give the company an edge ahead of its competitors. Therefore, companies with more tangible assets have high tendency of minimizing voluntary disclosure to protect their competitive secretes. Meanwhile Kinpngetic (2020) opined that, companies with greater component of tangible assets tend to have a lower agency cost. Meanwhile, the more the assets tangibility a company has the more it disclosures environmental disclosure. This implies that an increase in tangible asset will also increase environmental disclosures the more often these assets damage the environment and the more the company's pay attention to the environmental responsibility. (Kipngetich 2020 & Elshabasy 2017)

Profitability can be defined as the excess of revenue over expenses (Hwang, & Lin, 2008). It is a firm attribute identified to have a great influence on the voluntary disclosure of organization. Profitability of a firm is measured by its profit after tax to total assets (Hwang & Lin 2008). According to Agboma (2021) Profitability can simply be described as the firm's ability to generate earnings by the efficient and effective utilization of available resources over a given period. It reflects the financial condition and achievement of a firm for a certain period of time. Agboma (2021) confirmed that firms that are more profitable appear to disclose less of CSR information

Previous studies show that, profitable firms have more resources to allocate towards environmental initiatives and reporting and can be able to invest in sustainability measures and technologies that can lead to more comprehensive and transparent environmental disclosures. Elshabasy (2017); Abubakar (2017); Benjamin et al., (2017); Blessing and Inuwa (2019); and Sabo (2020), who also found firm profitability have significant positive impact on firm environmental disclosures.

2.2 Empirical Studies

Many studies around the world have investigated the effect of firm attributes on environmental disclosure. This part of the study reviewed the empirical findings of the previous studies from Nigeria and beyond.

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Iyoha and Ohiokha (2023) examine firm attributes and environmental accounting disclosure of companies in high and low environmentally sensitive industries (ESI) listed on the Nigerian Exchange Group NGX. Longitudinal research design is adopted, using twenty 20 companies each in the manufacturing and financial sectors, for a period of five years 2016 to 2020. The study has three sub-samples high ESI low ESI and a full a combination of high ESI and low ESI samples. Secondary data sourced from the annual reports were analyzed using an independent sample t-test and panel estimation technique. Low ESI companies have higher environmental disclosure than high ESI companies, and the difference is significant. However, profitability and leverage have found to be positively in significant while size is found be to positively significant with environmental disclosure. This study only considering three most used variable which is profitability, leverage and firm size, there is need to examine the effect of other variable such as asset tangibility, capital intensity and managerial ownership especially in the sensitive in industry like industrial good companies in Nigeria.

Zayol et al., (2021) investigate the relationship between firm characteristics and corporate environmental disclosure by Nigerian less- sensitive listed companies. Data were collected from the annual reports of listed companies financial service and other service sectors on the Nigerian Stock Exchange for the period of 2009 to 2018. Ex post factor research design was used. Panel regression was used in analyzing the data. The findings of the study revealed that environmental disclosure by less-sensitive listed companies in Nigeria is low but show a steady increase over the study period. The finding of the study also revealed that age of the firm and leverage are positively and significantly related to the level of corporate environmental disclosure by the less- sensitive listed companies in Nigeria. In addition, firm size and size of audit firm are positive but insignificantly related to environmental disclosure.

Shuaibu (2020) examine the influence of firm characteristics on environmental disclosure quality of listed cement companies in Nigeria. Data were extracted from the annual report and accounts of the listed cement companies for the period of 2013-2017. Firm age, firm size and leverage were used as a proxy for firm characteristics. In order to measure the extent of environmental disclosure quality, the annual reports of the firms were analyzed through content analysis using GRI as index of disclosure and the study analyzed the data using descriptive statistics, correlation and multiple regression technique via STATA 12.0. Findings from the study revealed that firm age, firm size and leverage has significant impact on quality of environmental disclosure.

Kipngetich (2020) examine the effect of firm-specific attributes on environmental accounting disclosure in Kenya. The study was driven by legitimacy theory and a longitudinal research design was adopted. The study targeted 27 listed firms at Nairobi securities Exchange from 2008 to 2017. Findings showed that asset tangibility and capital intensity had a positive and significant effect on environmental accounting disclosure. The study concludes that asset tangibility, capital intensity, and ownership concentration are key predictors of environmental accounting disclosure. Therefore, firms need to diffuse ownership concentration and increase asset base, so as to increase the level of environmental accounting disclosure.

Shuaibu et al., (2023) examine the impact of corporate financial attributes on west disposal cost disclosure (WDCD) of listed industrial goods companies in Nigeria for a period of 2013 to 2023. The study uses census sampling technique selected 10 companies from a population 13. The data was used from published annual reports and accounts as at 31 December 2020. Description and multi regression analysis were used to analysed the data. The study found that, firm size, leverage and sales growth have negative and significant relationship with WDCD while the profitability is found negative and insignificant. This study focuses on a specific segment of environmental disclosure which west disposal cost disclosure neglecting the general environmental disclosure considering devastating effect of industrial goods companies to the environment. As such, there is a need to look into the effect of firm attributes on environmental disclosure.

Fabian et al., (2021) investigated firm characteristics on corporate social responsibility disclosure of consumer goods sector in Nigeria. Four specific objectives were formulated to ascertain the effect of firm size, firm age, firms leverage and firms' profitability on the corporate social responsibility disclosure of quoted consumer goods in Nigeria. The research hypotheses synchronized with the objectives of the study. Filtering sampling technique was employed, and secondary data were collected from the financial statement of the twenty firms selected for the study for the period covering 2014 to 2018 financial years. Pool data gathered were analysed using descriptive statistics, correlation and regression technique, the results indicate that firm size has significant but negative effect on corporate social responsibility disclosure at 1 level.

Okoba and Chukwu (2023) investigated the effect of corporate attributes especially firm size, firm age and leverage on social sustainability performance disclosures in Nigeria. A checklist based on the global reporting index was used in analysing social sustainability performance disclosures SSPD in the sustainability reports of thirty manufacturing firms. The firms were drawn from the consumer goods, industrial goods, agriculture and health care sectors of the Nigerian economy, and the data used covered the period 2010 to 2020. The study was anchored on the legitimacy theory perspective. Information on firm attributes was extracted from the annual reports of the selected firms for the same period. This study focus on sustainability performance instead of considering the week level of disclosure in Nigeria which lead to ranking the nation among the poorest environmental performance, as such examining the level corporate disclosure is needed in Nigeria.

2.3 Theoretical Background

The model for this study is anchored on legitimacy theory. The contract is breached if firms are unable to satisfy societal environmental concerns (Milne & Patten, 2002). Organizations have to carry out their operations in a manner that conforms to acceptable societal norms in order to be seen as legitimate. Therefore, corporate entities need to make environmental disclosure in order to maintain the implicit social contract and prevent legitimacy crises.

Besides, it's now practically difficult for companies to ignore the societal concern with regard to their operations, especially the companies; whose operations are hazardous and environmentally destructive. Notably, the people of Nembe community of Bayelsa State of Nigeria have protested against the oil spillage that spurted to their community which destroyed their fishing and farmlands. The spillage is considered the largest in the history of Nigerian oil and gas industry which lasted for nearly two months. (Egbejule, 2021).

Moreover, Olawin, (2023) reported a rejection of coil mining plant proposed by Dangote Cement in Yelwa North local government area of Ogun state by the host communities. This is due to the excessive environmental impact surrounding the coil mining operation most especially the health implication in addition to the gradual degradation of their farmland. Similar incident also happen in Obajana of Kogi State, the resident protested against the mining operation of Dangote Cement in the area, stressing that, the community is exposed to series of erosion that threatened their life and economic activities (Leadership newspaper, 2022).

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Aforementioned incidences, stresses the needs for the organization operate within the norms, value and customs of the social in which they operates for them to be regarded as legitimate. This study adopts legitimacy theory because it considers the rights of the public at large and not merely those of the investors only.

DATA AND METHODOLOGY

This study uses the correlational research design and the scope of the study consist of nine (9) industrial goods companies listed on the floor of Nigerian Exchange Group (NGX) as at 31st December, 2022. Secondary data were collected from the published annual reports and accounts of listed industrial goods companies in Nigeria from 2014 to 2022. The study uses census sampling technique where all the population of the study was used. The study uses descriptive statistics and multiple regression to analyses the data.

GRI (13) was used which composed of 42 items, the environmental disclosure scores are ascertained by assigning a dummy value of 1 if the company disclosures environmental information on a particular item as contain in the GRI otherwise 0. Meanwhile, the scores are then computed as the proportion of total number of items disclosed by the entity to the total possible number of items disclosed by the entity.

3.1 Variables of the study and their measurement

The dependent variable of this study environmental disclosure proxy by GRI while the independent variables are firm attributes such as profitability, asset tangibility, and managerial ownership and firms size as control variable. However, the measurement of variables is depicted in the Table 1.

Table 1: Variables Measurement

Variable Name	Symbol	Type of Variable	Measurement and Source(s)
Environmental disclosure	GRI	Dependent	Calculated as ratio of number of disclosures divided by total items on the index as used by Shuaibu et al. (2023); Salawu et al (2021)
Asset tangibility	AT	Independent	Measured using returns on assets; total revenue divided by total asset a used by Kipngetich (2020)
Managerial Ownership	MO	Independent	Measured as the ratio of shares owned by members of the management to the total number of firms shareholding. As sued by Jaafar et al. (2021)
Profitability	PROF	Independent	PBT divided by total assets as used by (Shuaibu 2020; Jaafar et al 2021)
Firm size	FS	Control	Measured as natural logarithm of total asset at the end of fiscal year as used by Sulaiman et al. (2018).

Source: Compiled from Literature, 2024

Model Specification

This study adapted the model from the work of Shuaibu, (2020) and the model presented as:

$ENVD_{it} = a + \beta_1 AT_{it} + \beta_2 MO_{it} + \beta_3 PROF_{it} = \varepsilon_i$ ....

Where: ENVD=is Environmental Disclosure

AT = asset tangibility

MO=Managerial Ownership

PROF = profitability

a…, β_3 is the regression model coefficients of the independent variables.

ε= it is the random error

RESULT AND DISCUSSION

Table 4.1: Descriptive Statistics of Dependent and Independent Variables

Variables	Observations (Obv.)	Mean	Std. Dev	Minimum	Maximum
END	81	0.2090	0.1122	0.0710	0.4290
PROF	81	0.0924	0.1690	-0.2689	0.7927
TAN	81	0.7975	0.9167	0.0011	5.5169
MO	81	0.2499	0.3227	0.0000	0.8608
FS	81	10.3911	1.3513	8.3100	12.7700

Source: *STATA Output (Version 14.0)*

Table 4.1 , shows a descriptive statistics result of the dependent and independent variables. The table shows the mean and standard deviation with minimum and maximum range of the dependent and independent variables. It can also be observed that the number of observations for each variable is 81. This is in line with nine (9) years' data of nine (9) sampled industrial goods companies used in this study. The environmental disclosure of the sampled listed industrial goods companies in Nigeria has a mean value of 0.2090with the minimum value 0.0710and a maximum value of 0.4290. The mean value of 0.2090 implies that the sampled listed industrial goods firms in Nigeria are able to disclose about 21% of environmental related items in their financial reports within the period under review

The assets tangibility of the sampled listed industrial goods companies in Nigeria has a mean value of 0.7975 with the minimum value 0.0011 and a maximum value of 5.5169. The mean value of 0.7975 implies that the sampled listed industrial goods firms in Nigeria has 79% proportion of tangible assets relative to its intangible assets within the period under review with the standard deviation of 0.9167 implies that there is high variation from the mean of tangibility of the sampled listed industrial goods companies in Nigeria.,

Also, the table shows that the average managerial ownership of listed industrial goods firms in Nigeria is 0.2499 with the minimum and maximum values of 0.0000 and 0.8608 respectively. The mean value of 0.25 implies that 25% sampled listed industrial goods firms in Nigeria are

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owned by the company insiders' ownership of shares in the firms they managed, while the minimum value of 0.0000 indicate a total absence from the shares ownership by the insiders and management of the firms and the maximum value of 0.8608 implies that 86% of the shares ownership by the insiders and management of the firms during the period under study. The standard deviation of 0.3227 implies that there is no variation from the mean of managerial ownership of the selected listed industrial goods companies in Nigeria, which confirms the absence of variability in managerial ownership of the sampled listed industrial goods companies in Nigeria within the period under study and it implies that the data did not deviate from the mean value of 0.25.

The profitability of the companies measured by return on assets (ROA) of the sampled listed industrial goods firms in Nigeria have a mean value of 0.0924 with the minimum value -0.2689 and a maximum value of 0.7927. The mean value of 0.0924 implies that the sampled listed industrial goods firms in Nigeria are able to generate about 9.24% return on assets within the period under review.

Finally, Table 4.1 shows that the size of the sampled listed industrial goods companies in Nigeria have a mean value of 10.3911 with the minimum value 8.31 and a maximum value of 12.42 obtained from a transformed values of ₦204 million and ₦2.658 trillion respectively, with the associated standard deviation of 1.3513 (in comparison to the mean of approximately 10.40), which exhibit substantial dispersion.

Table 4.2: Correlation Matrix of the Dependents and Independent Variables

	EVD	PROF	TAN	MO	FS	VIF
EVD	1.000					
PROF	-0.0025	1.000				1.06
TAN	-0.2378	0.1771	1.000			1. 24
MO	0.1815	-00662	-0.1313	1.000		1.04
FS	0.7356	0.0757	-0.3614	-0.0931	1.000	1. 20

Source: *STATA Output (Version 14.0)*

The results in Table 4.2 shows positive association exists between environmental disclosure and managerial ownership. This is inferred from the correlation coefficient of 0. 1815 while, it shows a negative association between the environmental disclosures of the listed industrial goods companies in Nigeria with asset tangibility and profitability. This is revealed by the correlation coefficients of-0.2378 and -0.0025 respectively

Table 4.3 Diagnostic Tests

Variables	Figure
Mean VIF	1.14
Hettest Chi2	19.56
Hettest Sig	0.0000
Hausman Chi2	4.85
Hausman Sig	0.3030
LM Test Chi2	66.97
LM Sig	0.0000

Source: *STATA Output (Version 14.0)*

Multicolinearity Test was conducted to test whether there is a correlation between independent variables which will mislead the result of the study. Collinearity diagnostics of variance

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inflation factor (VIF) and tolerance values (TV) are observed and all indicated the lack of multicollinearity in the panel data as all the VIF's are consistently less than 5(1.04 – 1.24) and tolerance values less than 1.0 (0.803727- 0.959620) but greater than 0.01 (Salawu et al., 2021). Therefore, the mean VIF of the study is 1.14 as shown in Table 4.3 and it support the above position.

Heteroscedasticity test is conducted to check whether the variability of error terms is constant or not. The result of the test reveals that there is no presence of heteroscedasticity because the hettestchi^2 is 19.56 with a probability of 0.0000 which is perfectly significant at 1%, indicating that the data are hetroscedastic with 100% level of confidence.

Hausman specification test for fixed and random effect was conducted to select the preferred model. The result of the test reveals that they are highly correlated because the chi-square probability is not significant at 10% of significant (0.3030.)

LM Test: was also conducted and the result shows the probability of chi of 0.0000 which is significant at any level. Which guided this work to interpret the result of the Random Effect.

Table 4.4: Random Effect Result (GRI Index Model)

Variable	Coefficient	T	P>|t| .
Constant	-0.6514499	-3.56	0.00
PROF	0.0034324	0.06	0.954
TAN	0.0094094	1.01	0.311
MO	0.1074885	2.99	0.003
FS	O.0794634	4.62	0.00
F-Statistic			10.87
Prob> F			0.000
R-squared (R^2)			0.7310
Adj. R^2			0.6090

Source: *Computed using STATA Statistical Software (Version 14.0)*

Specifically, the results from Table 4.4 above show that the independent variables of the study (asset tangibility, managerial ownership and profitability; together with the control variable, firm size) jointly explained around 73% of the systematic variations in environmental disclosures as measured by GRI disclosure index of the listed industrial goods firms in Nigeria during the period, from the coefficient of multiple determinations (R-square of 0.7310). This means that 73% of changes in environmental disclosures were caused by changes in independent variables and the control variables in the model.

However, these have been captured in the error term, the F-statistic value of 10.87 and its associated P-value of 0.0000 shows that the random effect regression model on the overall is statistically significant at 1% level, this means that the regression model is valid and can be used for statistical inference.

The above table also shows that Profitability and Assets Tangibility does not have significant on environmental disclosure with coefficient of – 0.1128109 and –0.088033 and the p value of 0.954 and 0.311 respectively. While the result reveal the positive and significant impact between managerial ownership and environmental disclosure with coefficient of 0.369468 and p value of 0.000

CONCLUSIONS AND RECOMMENDATIONS

The study examines the extent to which firm's attributes impact on the environmental disclosure in the Nigerian listed industrial goods companies. Asset tangibility, managerial ownership, and profitability were the characteristics examined while controlling for firm size. Therefore, from the findings of the study, it's obvious that to some extend the firm's attributes has influence on environmental disclosures of listed industrial goods companies in Nigeria. Hence, it concluded that;

i. Companies with higher asset tangibility are not adequately disclosing their environmental reported. This is due to fact that environmental disclosure is still not mandatory on the listed industrial good companies in Nigeria for the period under review.
ii. Listed industrial goods companies in Nigeria with higher managerial ownership would highlight their influence on the environmental transparency of these companies. That is, higher levels of managerial ownership lead to lead to increased environmental disclosures, possibly due to a stronger personal commitment to sustainability and a desire to align the company's image with environmental responsibility in listed industrial goods companies in Nigeria.
iii. Listed industrial goods companies in Nigeria with higher profitability are also not investing in the environmental programs and policies which a view to main high profit margin.

Recommendations

The following recommendations were proffer;

i. Regulatory authorities should make environmental disclosure a requirement for listing into the floor of Nigerian Stock Exchange. This will help the industrial good companies acquired more healthy tangible asset and increase their responses toward environmental sustainability.
ii. Industrial good companies should strategize their shareholding policies by encouraging managerial shareholding. This will help them reduce the cost of information asymmetry and increase their responsiveness in the society in which they operate by proactively responding to the environmental consequences of their operation, by doing that, the going concern policy of the company have no treat.
iii. Management of industrial goods companies should strategically provide enough funding to environmental reporting and sustainability activities as well as undertake some community environmental awareness and programme such as free health care treatment, providing sanitary tools and equipment, afforestations among others. This will help companies gain more awareness and boost their reputation in their operating communities and mitigate the constant threat of environmentalist, and society in addition to their compliant behavior regard by the authorities.

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