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Effect of Firm Characteristics on Environmental Disclosure Practices of Listed Manufacturing Companies in Nigeria

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Abstract
The study examines the effect of firm characteristics on environmental disclosure practices of listed manufacturing companies in Nigeria, the objectives of the study were to determine the effect of firm age, size, profitability and leverage of a company on environmental disclosure by listed manufacturing companies in Nigeria. The study adopted ex-post facto research design. The findings shows that firm age, profitability and leverage has a negative insignificant effect while firm size has a significant positive effect on environmental disclosure of listed manufacturing companies in Nigeria. The study recommended among others that Since firm age, size, profitability does not does not affect environmental disclosure, younger companies that are new in the market should strive to disclose more environmental information in order to attract investors who are environmental inclined.

Keywords: *Environmental Disclosure, Manufacturing companying, Profitability, Manufacturing company*

1. Introduction

In the past, companies paid very little attention to environmental degradation caused by their activities. However, we are in a new era of sustainability where most people now recognize the importance of preserving clean air and clean water. Customers are willing to pay more for products whose processes are environmentally friendly and investors place very high values on environmental responsibility (Adugu, Soomiyol, & Yua, 2022 and Uwuigbe, 2011). This development gave rise to the environmental accounting movement. And it has in the past been coherently argued that there is a moral cause for businesses not only to report on financial matters but also to report on their impact on the social and natural environment so as to demonstrate responsiveness to all sources of concerns from various stakeholders (ACCA, 2022).

Environmental reporting simply refers to self-reporting of the firms' environmental impact information to stakeholders. The communication of this information is done in a variety of different forms and mediums such as the annual reports, stand-alone environmental reports, pamphlets, documentaries and brochures among others (Ityavyar & Yua (2023). Gray & Bebbington, 2017). Environmental accounting, audit and disclosure enable an organization to demonstrate its responsiveness to all sources of concern from stakeholders.

Disclosure of corporate environmental activities stressed the necessity for a close monitoring of natural resources and the corporation's harmful effect on the society it operates. Environmental effects caused by activities of firms especially those in the manufacturing, oil and gas include pollutions like noise, waste, hazardous emission, spillages and degradation. Parmigiani, Klassen & Russo, (2011) posit that environmental reporting is with reference to making environmental related costs more transparent with company accounting systems and reports. Adeyemi and Ayanlola (2015) further noted that though self-induce vices, regulatory, laxity, inauspicious macroeconomic environment, and endemic corruption in the economy are major constraints to the discharge of social and environmental accounting information and firm characteristics Lankwagh, Tsegba., Soomiyol, & Yua (2023).

Firm characteristics refers to the attributes which a particular firm possess that define its activities. Firm size, age, leverage, profitability are important factors in explaining information on environmental disclosure. Ezhilarasi and Kailash (2015) show that company size, age, profitability and leverage, are important factors in explaining environmental disclosure practices of corporate organization. Many researchers, such as Ezhilarasi and Kailash (2015), Adeyemi and Ayanlola (2015), argued that determining the extent to which firm characteristics affect the choice of disclosure policy by a firm and identifying those characteristics that are influential has an important implication for stakeholders of such a company.

The vulnerability of the environment could be linked to uncoordinated chain of human activities with total disregard for environmental laws and regulations. The current environmental picture is a consequence of human activities in the past and at present which will culminate into the future outlook of the global community. Environmentalists are concerned with how to limit or eradicate activities that impact negatively on the environment (Soomiyol, Tyondun, & Yua, 2024). For instance, emission of waste into the atmosphere is found to be harmful to the climate and invariably human existence yet many companies dispose their industrial wastes through emission. It is high time businesses are directed in line with acceptable corporate governance codes to stem the persistent infraction against the environment. Therefore, collective reorientation and attitudinal change of all inhabitants of the world to work towards having a safer environment. In the last decades, the uncontrolled impact of industrial activities on the natural environment has created critical ecological concerns (Boshnak, 2021 ;Ivonne and Shewangu, 2021; Badingatus and ukhti, 2021). The aggravation of phenomena like climate change, ozone depletion, and over-exploitation of natural resources, air pollution and toxic wastes are harming the sustainable development of the planet and of the economic system.

1.1 Objectives of the Study

The main objective of this study is to determine the effect of firm characteristics on environmental disclosure practices of listed manufacturing companies in Nigeria while its specific objectives include to;

1. To determine the effect of firm age on environmental disclosure of listed manufacturing companies in Nigeria.
2. To examine the effect of firm size of the firms on environmental disclosure of listed manufacturing companies in Nigeria.

3. To investigate the effect of profitability of a company on environmental disclosure of listed manufacturing companies in Nigeria.
4. To ascertain the effect of leverage on environmental disclosure by listed manufacturing companies in Nigeria.

2. Literature Review

2.1 Theoretical framework

This sub-section outlines various theories underpinning the effect of firm characteristic on corporate disclosure. Accordingly, this study outlines the legitimacy, stakeholder and profit maximizing theory which are discussed below.

2.1.1 Legitimacy theory

Legitimacy theory was propounded by Dowling and Pfeffer (1975), and is derived from the concept of organizational legitimacy. It grants an organization the right to carry out its operations in an agreement with society's interests. Hence organizations seek to operate within the norms and aspirations of their respective communities. When there is a disparity between two value systems, there is a threat to the company's legitimacy. The theory typically suggests that firms use declarations to manage their image with a legitimacy crisis when an adverse change exists in the public perception of the enterprise. The legitimacy theory believes that the management provides information to make the company look good in the eyes of stakeholders, but this information may be suitable for making sound investment decisions (Martin & Bikki, 2010). The relevance of this theory to this study is that management must react to environmental issues concerning the environment they operate to gain acceptance of the society and survival of their firm.

2.1.2 Stakeholder theory

Stakeholder theory was propounded by R. Edward Freeman (1984). Freeman and Reed (1983) have identified stakeholders as "the groups who have an interest in the actions of the corporation. In a follow up study, Freeman (1984) revisited stakeholder theory and redefined stakeholders as any individual or group who has an interest in the firm because he (or she) can affect or is affect by the firm's activities. Carroll (1999) has defined stakeholders as any individual or group who can affect or is affected by the actions, decisions, policies, practices, or goal of the organization. Stakeholders can be identified by the legitimacy of their claims which is substantiated by a relationship of exchange between themselves and the organization, and hence stakeholders include stockholders, creditors, managers, employees, customers, suppliers, local communities and the general public. Stakeholder theory suggest than an organization will respond to the concerns and expectations of powerful stakeholders and some of the response will be in the form of strategic disclosures. Stakeholder's theory provides rich insights into the factors that motivate managerial behavior in relation to the social and environmental disclosure practices of organizations. Previous social and environmental accounting research which utilized these theories indicate that organizations respond to the expectations of stakeholders groups specifically and generally to those of the broader community in which they operate, through the provision of social and environmental information within annual reports. The relevance of this theory to the study is that management should try and build a framework that will be responsive to the concerns of stakeholders who are being affected by unprecedented levels of environmental issues and change.

2.1.3 The profit maximizing theory

The profit maximization theory was propounded by Robert Wong in 1975 and according to the theory; the main objective of a business firm is profit maximization. Maximum profits refer to pure profits which are a surplus above the average cost of production. It is the amount left with the entrepreneur after he has made payments to all factors of production, including his wages of management. In other words, profit maximization is aimed at enhancing excess revenue over relative expenditure. The profit maximization model of the firm provides decision makers with useful framework with regard to efficient management and allocation of resources. The profit maximization theory is based on the following hypotheses: i). profit is indispensible for organizations survival; ii). Profit helps in achieving other objectives; iii). Profit maximization has a greater predicting; and iv). Profits as a measure for organizations efficiency. The profit maximization theory holds that the first and most important objective of a firm is to maximize its profit which can be used to achieve other objectives such as payments of dividends. It can thus be deduced from the profit maximization theory that profitability is a key and most important determinant of dividend policy. Wong (1975) further argued that the level of profitability influences the level of disclosure of companies as those companies with high profit will want to disclose more in order to portray the efficiency of management and create a public image that such company is doing well.

2.2 Conceptual Review

2.2.1 Firm Characteristics

Firm characteristics can be seen as the wide varieties of information disclosed in the financial statements of business entities as well as those information not disclosed in the financial statement that serve as the predictors of the firm's quality of accounting information and performance. Firm specific characteristics are factors that are mostly under the direct control of management (Adeyemi & Oboh, 2011). As espoused by extant literature, the frequently used firm specific characteristics include firm age, firm size, leverage and profitability. These characteristics are discussed individually.

2.2.1. Age

Company age has been considered as an important company characteristic that can influence the extent of environmental disclosure. It is suggested that age of the company can serve as an indicator of perceived stability of the firm (Liu & Anbumozhi, 2009) and represent some aspects of stakeholder power, strategic posture and financial performance (Roberts, 1992). It is also argued that as a company matures, its reputation and involvement in discretionary activities, such as environmental protection activities and disclosure of environmental information, can become entrenched and more valuable to the company (Roberts, 1992 & Choi, 1999). In this sense, a positive relationship between age of the company and the extent of environmental disclosure can be expected.

2.2.1.2 Size

The size of a firm is considered an important variable in determining the firm's operational strength. According to Kabir and Hartini (2014), there are more opportunities for firms that grow in size, to operate in bigger segment environment in both business and geographical regards. Firm size has also been shown to be related to industry sunk costs, concentration, vertical integration and overall industry profitability. This is because larger firms are more likely to have more layers of management, greater number of departments, increased specialization of skills and functions, greater centralization and greater bureaucracy than smaller firms. Yao, Wang and Song reveals that large firms tend to get more attention from the general public therefore larger firms get greater public pressure to show their environmental responsibility.

If linked to stakeholder theory, large firms have more stakeholders than small firms. This is why large firms should have a wider disclosure of information to meet the stakeholders' need for information related to their interest. Small firms seem to be more dependent than large firms on the personal and cohesive social relationships of the entrepreneur and top management team such as their relationship with family members and friends, on which they rely to obtain resources, gain legitimacy. Conversely, larger firms may seek business relationships for different strategic motives, such as innovation, market access, financial need and so forth. Firm size could be measured using Firm size indicators as used in previous studies include; total assets, total sales and number of employees. However, for the purpose of this study, it will be measured using total assets.

2.1.3 Leverage

Although leverage has been considered as an important company characteristic that can have an effect on the environmental disclosure, Leverage measures the degree to which a business is utilizing debt fund. Financing with debt funds is sometimes advantageous to the shareholder's return on their investment by making use of tax benefits associated with the borrowed funds it is possible to say that there is no consensus in the literature on the relationship of this characteristic with the extent of disclosure. As stated by Andrikopoulos and Kriklani (2013), leverage can affect the volume of environmental disclosure in two-fold manner. It is argued that as firm debt (leverage) increases, the investors' monitoring demand for information also increases in order to keep themselves informed about operating performance of the company, including environmental performance (Clarkson 2008 & Clarkson 2011, Freedman & Jaggi, 2005; Andrikopoulos & Kriklani, 2013; Pahuja, 2009; Huang & Kung, 2010).

2..1.4 Profitability

Profitability is a company indicator that is used to see the company's ability to earn profits (Paramitha & Roman, 2014). According to Hackston and Milne (1996) in Suhardjanto (2010) states that the relationship between profitability and disclosure is a reflection that shows that a social response is needed to make a company profit. Thus disclosure of environmental responsibility is believed to be a management approach to reducing social pressure and responding to social needs. Research conducted by Suhardjanto and Miranti (2007) found evidence that profitability has a significant effect on environmental disclosure.

2.2.2 Environmental Disclosure

Chartered Institute of Management Accountants (2012) defines environmental disclosure as the public disclosure of information concerning an entity's environmental performance. It makes organizations appear more accountable for the economic, environmental and social consequences of their activities (CIMA, 2012). Environmental disclosure can also be defined as public disclosure by a firm, its environmental performance information, similar to the publication of its financial performance. Environmental disclosure according to (Beredugo & Mefor, 2012), is very important as it enhances the quality of decision making, requiring firms to establish a standard and set reduction targets and the realization of the importance of changing unsustainable consumption and production patterns alongside protecting and managing Nigerian national resources; the information contained in environmental disclosure are necessary for accountability, comparability and probity, hence when not made available could be held synonymously with being bias, not transparent, fraudulent and liable to risk which in turn could dissuade patronages from consumers, suppliers, investors and surrounding communities.

Empirical Review

Sulaiman, Aruwa and Musa (2018) examined firm characteristics and environmental disclosure of listed oil and gas firms in Nigeria for the period of seven years (2010-2016). The population of the study was 12 firms while the sample size of the study comprised 10 firms. Firm characteristics were proxied by firm size, firm age and profitability while binary codification was used for natural wealth disclosure. The study used panel binary logistic regression to analyze the data while descriptive statistics and correlation matrix made the pre-regression analyses. The study found out that firm size and firm profitability have negative but insignificant relationship with natural wealth disclosure while firm age has positive significant relationship with natural wealth disclosure. There viewed studies used only two attributes (firm structure and performance attributes) out of the four key attributes of firms espoused by extant literature.

Uyagu, Okpanachi, Nyor and Muhammad (2017) examined the effect of firm characteristics on environmental reporting practices of listed manufacturing firms in Nigeria. The population of the study comprised of sixty-one (61) manufacturing firms with a sample size of 29 firms drawn using judgmental sampling technique. Data were gathered using annual reports and accounts of the sampled firms through content analysis. Multiple regression technique was used for the analysis of the data. The study found out that the firm characteristics of firm size, leverage, return on assets and firm age have significant and positive effect on environmental reporting practices of listed manufacturing firms in Nigeria. The study recommended that listed manufacturing firms should raise fresh funds by retaining a good portion of their profits for the acquisition of assets to enhance environmental reporting practices in Nigerian listed manufacturing firms. The reviewed studies used three attributes (firm structure, market and performance attributes) out of the four key attributes of firms espoused by extant literature.

Soomiyol, Teghtegh and Yua (2023). The study examined the effect of sustainability reporting on the performance of sampled Oil and Gas firms in Nigeria. Performance proxied by return on assets (ROA) was the dependent variable while sustainability reporting was surrogated by economic reporting, environmental reporting and social reporting. The major analysis to achieve the specific objectives was performed using the generalized least square (GLS) regression techniques. The significance of the association and relationships was at 5% confidence level. Z-test statistics were used to test the significance of the relationships. The results of the model revealed that the explanatory variables account for as low as69.51% of the overall variation in the financial performance of sampled Oil and Gas firms in Nigeria. The findings show that economic reporting and environmental reporting have a significant effect on the financial performance of sampled oil and gas firms in Nigeria while social reporting has no significant effect on the financial performance of sampled Oil and Gas firms in Nigeria. The study recommends among others that, listed oil and companies in Nigeria should intensify the economic dimension of sustainability reporting as this could lead to increased performance in addition to satisfying their information needs and assisting them to hold firms to account for not only economic reporting but also environmental and social reporting as it impacts them.

3. METHODOLOGY

3.1 Model Specification

The model for this study shows that the functional relationship between the dependent variable (environmental disclosure) and independent variable (firm characteristics). According, the model specified for this study as;

ED = f (FAGE, FSIZE, LEV, PROF, AUDS) …………………… (1)

Accordingly, the panel regression model for the study is expressed in the following equation:

$ED_{it} = \beta o + \beta 1FAGE_{it} + \beta 2FSIZE_{it} + \beta 3LEV_{it} + \beta 4PROF_{it} + AUDS_{it} + e_{it}$……………….. (2)

Where:

ED = Environmental Disclosure
F = the function of the vector of the independent variables
FAGE = Firm Age
FSIZE = Firm Size
LEV = Leverage
ROA = Profitability
AUDS = Audit Size
βo = Constant Term
$\beta 1$- $\beta 4$ = Beta Coefficient
i = Cross section
t = Time period

e = Error term

3.2 Techniques of Data Analysis

The study used descriptive statistics to provide detail statistics of the raw data in the form of mean, standard deviation, minimum, maximum and number of observation. Furthermore, to achieve the objectives of this study and to test the hypotheses formulated the panel least square regression (fixed effect models) was employed for statistical analysis. The study used the Hausman specification test for panel randomization to choose between the estimated fixed and random effect models and the test is based on the null hypotheses that the random effect model is preferred to fixed effect model. The panel data methodology was employed for this study because of the cross sectional and time series nature of the data. Furthermore, the use of regression technique in this study entails the examination of the data to ensure they meet some of its underlie assumptions. Consequently, to ensure validity, reliability and robustness of the results, the study conducted a number of diagnostic tests on the raw data in the following domain: Skewness and Kurtosis test for data normality; correlation matrix and variance inflation factor (VIF) tests for multicollinearity; Breusch-Pagan/cook-weisberg test for heteroskedasticity.

4.0 Results And Discussion

4.1 Descriptive Analysis

The descriptive statistic contained in Table 3 examines each variable based on the mean, standard deviation, maximum and minimum values.

Table 3: Descriptive Statistics

Statistics	***ED***	***FAGE***	***FSZ ‘₦000’***	***LEV***	***PROF***	**AUDS**
Mean	0.481818182	40.92857143	14,440,801.37	0.449611588	0.16751112	0.642857143
Standard Deviation	0.172625368	10.50949185	19,010,550.81	0.232269552	0.20927442	0.482617089
Minimum	0.181818182	16	1,524,140.00	-0.231131041	-0.54646356	0
Maximum	0.818181818	64	98,463,387.00	0.975993776	1.72977376	1
Count	210	210	210	210	210	210

Source: Result output

The number of observations for the study is 210; this means, 21 companies are studied over a period of 10 years). In the case of the independent variables, the study finds that FAGE has a mean of 40.92857 and a standard deviation of 10.50949 years. This implies that on the average, the companies are listed for over 40 years and 11 months. The minimum value for FAGE is 16 while the maximum value is 64 years. Further finding reveals that, FSZ (firm size) has a mean of 14,440,801,000 naira and a standard deviation of 19,010,550,000 naira. This implies that on the average, the companies record about 14,440 billion naira in total assets. The minimum value for FSZ is 1,524,140,000 naira while the maximum value is 98,463,387,000 naira. The study finds that, LEV (Leverage) has a mean of 0.449611588 ratio and a standard deviation of 0.232269552 ratio. LEV records a minimum and maximum values of -0.231131041 and 0.975993776 respectively. Accordingly, the study result shows that, PROF (profitability) has a mean of 0.16751112 ratio and a standard deviation of 0.20927442 ratio. PROF records a minimum and maximum values of -0.54646356 and 1.72977376 respectively.

In respect to the dependent variable (Environmental disclosure), the study reveal a mean value of 0.4818182 with a standard deviation of 0.1726254 for ED. This means that manufacturing companies in Nigeria disclose about 48.1% of the total required environmental disclosure criteria as stipulated by the GRI. ED has minimum and maximum values of 0.1818182 and 0.8181818 respectively. The control variable which is audit size (AUDS) has a mean value of 0.6428, indicating that on average, about 64% of the sampled companies used the big 4 audit companies during the study period. AUDS also has a minimum value of 0, indicating that some of the sampled manufacturing companies did not engage the service of the big 4 audit companies during the period of interest. AUDS also has a standard deviation value of 0.4826, meaning that the standard deviation value is closer to the minimum limit than the maximum limit thus, indicating that the use of the big 4 audit companies does not exhibit much variance across the sampled manufacturing companies during the period under review. Furthermore, the sampled companies during the period of interest has a maximum AUDS value of 1, indicating that some of the sampled companies employed the services of the big 4 audit companies.

4.2 Diagnostic Tests

A number of tests are carried out to ascertain if the data used in this study meet the requirements of the regression technique. They include; data normality test and multicollinearity tests.

4.2.1 Data normality test

To test for the level of disparity between the data sect which might disrupt the outcome of the result or to ascertain the fitness of the data used for the study, the joint probabilities of both the skewness and Kurtosis test are used as data normality test. Table 4 reveals the normality test result:

Table 4: Data normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
ED	210	0.7167	0.0000	.	0.0000
FAGE	210	0.0000	0.4679	18.67	0.0001
FSZ	210	0.8753	0.0000	32.32	0.0000

LEV	210	0.0000	0.1207	20.53	0.0000
PROF	210	0.0000	0.0000	60.50	0.0000
AUDS	210	0.0367	0.0000	.	0.0000

Source: STATA output

From the result of Skewness and kurtosis test presented in Table 4, the skewness and kurtosis values of all the study variables are between -1 and +1 which is below the threshold of – or + 2, indicating that the study variables are normally distributed.

4.2.2 Multicollinearity test

Multicollinearity is a situation where two or more independent variables are 'collinear', that is, when they exist exactly depending on the number of independent variables. If it is found in multiple regression analysis that some of the independent variables are highly correlated, then the problem of Multicollinearity has occurred. If perfect correlation occurred between the explanatory variables, the parameter coefficients will therefore be indeterminate. When multicollinearity occurred, there must be large standard errors of the estimated coefficients. When this violation happens, it is certainly not a problem of the model or the disturbance term and thus, does not affect the Best Linear unbiased Estimators (BLUE) properties of the ordinary least square estimates. The correlation test is carried out to determine the presence or absence of multicollinearity in the data used in this study. The results of the test are presented in Table 5

Table 5: Correlation results

	FAGE	FSZ	LEV	PROF	AUDS
FAGE	1.0000				
FSZ	0.0511	1.0000			
LEV	0.0226	-0.1558	1.0000		
PROF	0.0190	-0.0893	-0.0206	1.0000	
AUDS	0.0144	0.0146	0.0114	0.0213	1.0000

Source: STATA Output in appendix II

The correlation matrix above shows the absence of multicollinearity or relationship between variables that might influence the outcome of regression result. All the variables show a low correlation with the highest correlation estimated at -0.1558 between LEV and FSZ. Correlation statistics that are above 0.70 are considered harmful for analysis but this is not the case with the current study.

4.2.3 Heteroskedasticity Test

Table 6 shows the result obtained from the test for heteroskedasticity. The result obtained from the heteroskedasticity test for this study showed a p-value of 0.2912 which is greater than the critical value of 0.05, implying that there is absence of heteroskedasticity and the model is free from the presence of unequal variance. Thus, the null hypothesis is accepted. This therefore implies that the probability values for drawing inference on the level of significance are reliable and valid. The absence of heteroskedasticity validates the regression results of the study, which means there is no need for robust or weighted least square regression.

Table 6: Result for Heteroskedasticity Test Results

Variable	Chi-Sq. Value	Probability Value
Model I (ED)	1.25	0.2912

Source: STATA Output

4.2.4 Hausman Specification Test

Table 7 presents the results of the Hausman specification test which helps to decide whether to use fixed or random effect model.

Table 7: Hausman Specification Test Results

	Statistic	P-value
i.	Hausman Test	0.0204
ii.	Wald test	0.3822

Source: STATA Output

As noted from the hausman test (0.0204<0.05) result above, the fixed effect model is preferred over the random effect model. The fixed-effect model which is the main technique for analysis of panel data is used when it becomes important to control for omitted variables in the data series that differ between companies. It allows the use of the changes in the variables over time to estimate the effects of the predictor (independent) variables on the outcome (dependent) variable. Accordingly, the outcome of the Wald test (0.3822>0.05) affirms the study decision to choose the fixed effect model over the ordinary least square model.

4.3 Regression Results

Table 8 presents the panel regression results based on the fixed effect model.

Table 8: Summary of Regression Results

R-sq: within = 0.1630	Obs per group: min = 10		
F(4,185) = 3.21	Prob > F = 0.0157		
ED |	Coef.	t	P>|t|
FAGE |	-.5644273	-1.63	0.105
FSZ |	.077395	1.97	0.049

LEV	-.0546221	-1.57	0.117
PROF	-.1197742	-1.76	0.081
AUDS	.0117612	1.98	0.048
_cons	1.981261	3.64	0.000

Source: STATA output

Table 8, presents the fixed effect regression result between FAGE, FSZ, LEV, PROF, AUDS and ED. The following information can be distilled from Table 8.The R^2 otherwise known as the coefficient of determination shows the percentage of the total variation of the dependent variable (ED) that can be explained by the independent and control variables (FAGE, FSZ, LEV, PROF and AUDS). Thus, the R^2 value approximately indicates that 16.3% of the variation in the environmental disclosure of listed manufacturing companies can be explained by a variation in FAGE, FSZ, LEV, PROF and AUDS. The remaining 83.7% (i.e. 100-R^2) could be accounted by other variables not included in this model like governance attributes of the companies. The regression result further records an F-statistics of 3.21 with a probability value of 0.0157 which means that, the overall model is fit.

The regression results as presented in Table 8 show that FAGE has a coefficient of -.5644273 with associated p-value of 0.105, indicating that firm age has a negative and insignificant effect on environmental disclosure. FSZ has a coefficient of .077395 with associated p-value of 0.049, indicating that firm size has a significant positive effect on environmental disclosure. LEV has a coefficient of -.0546221 with associated p-value of 0.117, indicating that leverage has a negative and insignificant effect on environmental disclosure. PROF has a coefficient of -.1197742 with associated p-value of 0.081, indicating that leverage has a negative and insignificant effect on environmental disclosure. AUDS as a control variable has a coefficient of .0117612 with associated p-value of 0.048, indicating that audit size employed by a firm has a significant positive effect on its environmental disclosure.

The implication of the result from Table 8 is that, when the independent variables are held stationary or without the variable intercept model (Constant); the ED variable is estimated at 1.981261. This simply implies that, when the independent variables are held constant, there will be increase in the ED of listed manufacturing companies up to the tune of 1.981261 index occasioned by factors not incorporated in this study.

4.4 Test of Hypotheses

The hypotheses stated earlier in section one of the study are tested in this section.

H_{01}: Firm age has no significant effect on environmental disclosure of listed manufacturing companies in Nigeria.

FAGE revealed a P-value of 0.105 with a t-statistics of -1.63 as against the stated 0.05 decision rule criteria. This implies that, firm age has no significant effect on environmental disclosure of listed manufacturing companies in Nigeria. The null hypothesis is therefore accepted.

H_{02}: Firm size has no significant effect on environmental disclosure of listed manufacturing companies in Nigeria.

FSZ revealed a P-value of 0.049 with a t-statistics of 1.97 as against the stated 0.05 decision rule criteria. This implies that, firm size has a significant effect on environmental disclosure by listed manufacturing companies in Nigeria. The null hypothesis is therefore rejected.

H_{03}: Leverage has no significant effect on environmental disclosure of listed manufacturing companies in Nigeria.

LEV revealed a P-value of 0.117 with a t-statistics of -1.57 as against the stated 0.05 decision rule criteria. This implies that, leverage has no significant effect on environmental disclosure of listed manufacturing companies in Nigeria. The null hypothesis is therefore accepted.

H_{04}: Profitability has no significant effect on environmental disclosure of listed manufacturing companies in Nigeria.

PROF revealed a P-value of 0.081 with a t-statistics of -1.76 as against the stated 0.05 decision rule criteria. This implies that, profitability has no significant effect on environmental disclosure of listed manufacturing companies in Nigeria. The null hypothesis is therefore accepted.

4.4 Discussion of Findings

This study provides evidence on the effect of firm characteristics on environmental disclosure of manufacturing companies in Nigeria. Since, the study is an extension of existing studies and is based on existing theories, the study findings are discussed below in conformity or argument against previous studies and existing theories. The results are discussed according to the stated objectives.

Objective one: To ascertain the effect of firm age on environmental disclosure of listed manufacturing companies in Nigeria

The result of objective one provided evidence that firm age has a non-significant negative effect on environmental disclosure. The result of this study is consistent with the study of Boshnak (2021) which found that firm age has a negative effect on environmental disclosure. The result of this study also confirms the study of Yousra (2017). The result of Yousra (2017) however, contradicts this study on the part that the effect is insignificant.

The result of this study is inconsistent with the studies of Kabiru (2020), Abdullahi et al. (2019), Uyagu et al. (2019), Egolum et al. (2019), Onyali and Okafor (2018), Sulaiman et al. (2018) and Arif and Tuhin (2013) which found that firm age has a significant positive effect on environmental disclosure. The reason for this contradiction could be as a result of the fact that past studies used other environmental disclosure index than the prescribed index by the GRI, while the GRI is the most accepted reporting index for companies on environmental issues. The aprori expectation of the study is that firm age will have a positive effect on environmental disclosure.

The result of this study supports the profit maximization theory which posits that, companies first line of thought is to maximize profit, therefore, embarking on environmental activities and subsequent disclosure is considered as unnecessary cost. The result of this study however, fails to support the legitimacy theory and stakeholders' theory.

Objective two: To ascertain the effect of firm size on environmental disclosure of listed manufacturing companies in Nigeria

The result of objective two provided evidence that firm size has a significant positive effect on environmental disclosure. The findings of this study is consistent with the studies of Boshnak (2021), Kabiru (2020), Atang and Eyisi (2020), Tarus (2019), Egolum et al. (2019), Onyali and Okafor (2018), Abubakar (2017) and Akbas (2014) which found that firm size has a significant positive effect on environmental disclosure.

The result of this study is however, inconsistent with the studies of Sulaiman et al. (2018) and Yousra (2017) which found that firm size has a non-significant negative effect on environmental disclosure. The reason for this contradiction could be as a result of the fact that past studies used other environmental disclosure index than the prescribed index by the GRI, while the GRI is the most accepted reporting index for companies on environmental issues. The aprori expectation of the study is that firm size will have a positive effect on environmental disclosure.

The result of this study supports the legitimacy theory and stakeholders' theory which posit that firms always want to be seen as legitimate and responsible thus, will indulge in socially accepted ethics like environmental disclosure in order to increase their legitimacy. Furthermore, most firms take into cognizance the interest of its various stakeholders by providing diverse information including environmental disclosure in order to suit their information need.

Objective three: To ascertain the effect of leverage on environmental disclosure of listed manufacturing companies in Nigeria

The result of objective three provided evidence that leverage has a non-significant negative effect on environmental disclosure. The result of this study is consistent with the studies of Abubakar (2017) and Yousra (2017) which found that leverage has a non-significant negative effect on environmental disclosure. The findings of this study is however, inconsistent with the studies of Boshnak (2021), Kabiru (2020), Uyagu et al. (2019) and Akbas (2014) which found that leverage has a significant positive effect on environmental disclosure. The reason for this contradiction could be as a result of the fact that past studies used other environmental disclosure index than the prescribed index by the GRI, while the GRI is the most accepted reporting index for companies on environmental issues.

The result of this study supports the profit maximization theory which posits that, companies first line of thought is to maximize profit, therefore, embarking on environmental activities and subsequent disclosure is considered as unnecessary cost. The result of this study however, fails to support the legitimacy theory and stakeholders' theory.

Objective four: To ascertain the effect of profitability on environmental disclosure of listed manufacturing companies in Nigeria

The result of objective four provided evidence that profitability has a non-significant negative effect on environmental disclosure. The result of this study is consistent with the studies of Boshnak, (2021), Sulaiman et al. (2018), Yousra (2017) and Akbas (2014) which found that profitability has a non-significant negative effect on environmental disclosure. The findings of this study is however, inconsistent with the studies of Atang and Eyisi (2020), Egolum et al. (2019), Onyali and Okafor (2018), Yousra (2017), Abubakar (2017) and Arif and Tuhin (2013) which found that profitability has a significant positive effect on environmental disclosure. The reason for this contradiction could be as a result of the fact that past studies used other environmental disclosure index than the prescribed index by the GRI, while the GRI is the most accepted reporting index for companies on environmental issues.

The result of this study supports the profit maximization theory which posits that, companies first line of thought is to maximize profit, therefore, embarking on environmental activities and subsequent disclosure is considered as unnecessary cost. The result of this study however, fails to support the legitimacy theory and stakeholders' theory.

The implication of this study's result for objective one to four alludes the fact that, manufacturing companies' long term existence, the magnitude of their size in terms of asset-volume, the combination of debt and asset structure, and the average profitability of the companies are not enough resources or translates to characteristics that ensures adequate environmental disclosures by the companies. This is in line with the profit maximization theory which proposes a thinking that, companies first line of thought is to maximize profit before taking on other cost. Thus, it means the current profit and leverage level of the companies does not put them in a position to incur extra cost of environmental disclosure which might leave the company with little disposable income to pay interest on debt capital used for economic activities by the companies.

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary of Findings

The results of empirical findings with respect to each specific objective of the study are as follows.

i. Firm age has no significant negative effect on environmental disclosure of listed manufacturing companies in Nigeria.
ii. Firm size has a significant positive effect on environmental disclosure of listed manufacturing companies in Nigeria.
iii. Leverage has no significant negative effect on environmental disclosure of listed manufacturing companies in Nigeria.
iv. Profitability has no significant negative effect on environmental disclosure of listed manufacturing companies in Nigeria.

5.2 Conclusion

The findings emanating from the study have led to the following conclusions;

i. Firm age has a negative insignificant effect on environmental disclosure of listed manufacturing companies in Nigeria.

ii. Firm size has a significant positive effect on environmental disclosure of listed manufacturing companies in Nigeria.
iii. Leverage has a negative insignificant effect on environmental disclosure of listed manufacturing companies in Nigeria.
iv. Profitability has a negative insignificant effect on environmental disclosure of listed manufacturing companies in Nigeria.

5.3 Recommendations

Based on the findings of this study, the study recommends that;

i. Since firm age does not does not affect environmental disclosure, younger companies that are new in the market should strive to disclose more environmental information in order to seize the opportunity and attract more investors who are environmental inclined.
ii. Smaller firms with small assets size are encouraged to engage more in environmental disclosure in order to attract investors who are environmental inclined to improve the assets base of their company. Also, listed manufacturing companies should dedicate an aspect of their assets into investing in long-term research and development that enhances environmental performance and disclosure by the companies. This will further add to their patent and assets structure as well increase significantly their environmental performance and disclosure.
iii. Manufacturing companies with lower debt structure or higher equity mix should engage more in environmental disclosure in order to attract more investors who are environmental sensitive. As much as disclosure is a cost against the profit of the companies, there is need for companies to look at alternating expenditure items on environmental (like a water treatment plant that will be beneficial to both the firm and host community) that might offer long term benefits and sustainable benefits for the companies. This will cushion the adverse effects of profitability on environmental disclosure.

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