UMM Journal of Accounting and Financial Management (UMMJAFM) journals@umm.edu.ng

EFFECT OF FIRM ATTRIBUTES ON SUSTAINABILITY DISCLOSURE OF LISTED MANUFACTURING COMPANIES IN NIGERIA

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Abstract
The study examined the effect of firm attributes on sustainability disclosure of listed manufacturing companies in Nigeria. The study only test for the effect of firm attributes on the environmental aspect of sustainability disclosure. The study adopts the quantitative research approach, based on an ex-post facto research design. The study population consists of 56 manufacturing companies listed on the Nigerian Exchange Group (NGX) as at 31st December, 2024. The sample size for the study consists of 30 companies which were selected based on the non-probability sampling technique. The data (2013-2023) gotten are analyzed using the panel regression technique. The study found that, market attributes (SHP & LEV) have no significant effect on environmental disclosure of listed manufacturing companies in Nigeria. Secondly, it is found that, profitability has a significant effect while liquidity has no significant effect on environmental disclosure of listed manufacturing companies in Nigeria. Thirdly, the study found that, governance attributes (BDS and BDC) has no significant effect on environmental disclosure of listed manufacturing companies in Nigeria. The study therefore recommended that, managers of listed manufacturing companies should prioritize voluntary environmental disclosures despite the study's finding of an insignificant effect of market attributes. To enhance transparency and sustainability, companies should prioritize integrating robust environmental policies, stakeholder engagement, and targeted training programs that foster a culture of environmental accountability beyond board composition or size.

Keywords: Environmental disclosure, market attributes, profitability, governance attributes

1.0 Introduction

Global issues bothering sustainability practices of companies have become increasingly important over the past decade. While some companies put profit ahead of environmentally friendly measures, others have difficulty effectively assessing and disclosing their social and economic efforts. This issue has weakened stakeholder's trust due to poor sustainability practices whereby businesses overstate their environmental, economic and social initiatives for profit motive (Ogunmodede, Ibukun-Falayi & Alake, 2024). In Nigeria manufacturing companies are beginning to understand the

value of sustainability standards and transparency in their business operations (Agarwala, Pareek & Sahu, 2023). To lessen the sustainability effects of their economic activities, many companies are investing in sustainable technologies, such as waste management plans and the use of renewable energy sources. Notwithstanding, several obstacles continue to exist, such as inadequate assets, high cost of sustainability disclosure which may have implication on the companies' profit. Despite this, Nigerian manufacturing firms are moving in the right direction and are helping to create a more sustainable and ethical business climate by bringing themselves into compliance with international sustainability standards (Onmonya, 2018).

Sustainability disclosure pertains to reporting of information about environmental, economic and social practice of companies. It is a framework used to evaluate a company's performance and sustainability practices beyond just financial metrics (Mapparessa et al., 2017). Despite this, Junius, Adisurjo and Rijanto, (2020) asserts that, for companies to strongly adhere to sustainability practices, they consider mostly their attributes to enable them absorb the cost of disclosure and to meet varying stakeholders' demand for such disclosures. Firms' attributes pertains to the resources in the form of financial resources and non-financial resources of companies. These financial and non-financial resources are largely grouped into the category of market attributes, performance attributes, and governance attributes of the companies.

Theoretically, when a firm fully complies with all the legal disclosure requirements, it has fulfilled its communication obligations to various stakeholders. But, in practice, many firms are observed to have voluntarily disclosed information other than what is statutory required by the legal framework of their business environments (Omesi & Berembo, 2020). However a number of questions, such as what information is to be reported and to what extent, when, how and to whom must the company disclose, need to be answered and is till undergoing review by scholars. For example studies done by Nguyen et al. (2017) and Olayinka (2022) have shown that firms' governance attributes are the major factors affecting sustainability disclosure of companies neglecting the economic disclosure aspects. Similarly, the studies done by Onyekwelu, Eneh and Okechukwu (2018), and Onmonya (2018) shows that, financial attributes and market attributes are the major factors affecting sustainability disclosure of companies also

neglecting the economic aspects. These studies have failed to evaluate how these firm attributes affect economic disclosures which would have been a more holistic sustainability study. This shows methodological gap in Nigerian studies.

Thus, the current study sets to adapt past empirical studies' model to evaluate the effect of firm attributes on sustainability disclosure of listed manufacturing companies in Nigeria using data that inculcates economic disclosure into the sustainability frames of the manufacturing companies in Nigeria. The main objective of this study is to examine the effect of firm attributes on sustainability disclosure of listed manufacturing companies in Nigeria. For the purpose of this seminar, the study will only test for the effect of firm attributes on the environmental aspect of sustainability. Therefore, the study's specific objectives include to;

i. Determine the effect of market attribute (share price and leverage) on environmental disclosure of listed manufacturing companies in Nigeria.
ii. Analyse the effect of financial attribute (profitability and liquidity) on environmental disclosure of listed manufacturing companies in Nigeria.
iii. Assess the effect of governance attribute (board size and board composition) on environmental disclosure of listed manufacturing companies in Nigeria.

2.0 Literature Review

2.1 Sustainability Disclosure

Sustainability disclosure is defined as the disclosure and communication of environmental, economic and social goals as well as a company's progress towards them. Sustainability disclosure according to Emeka and Osisioma (2019) has to do with measuring and disclosing on various non-financial information and firms performance in relation to the goal of sustainable development. It means integration of environmental, social and economic factors into investment analysis, security selection, portfolio construction and risk management.

According to Elkington (1997) the term sustainability disclosure is linked to sustainability reporting or "triple bottom-line" which is a yardstick for measuring and reporting corporate performance against social, economic, and environmental parameters. It is also the whole set of values, issues, and processes that companies must address in order to minimize any problem resulting from their activities and to create economic, social

and environmental values and the three lines represent society, economy and the environments (Elkington, 1997). It is recently that scholars introduced the governance aspect into sustainability to become sustainability. A sustainability disclosure depicts the organization's values and governance model and demonstrates the link between its strategy and its commitment to a sustainable global economy. Sustainability disclosure can help organizations to measure, understand and communicate their economic, environmental, social and governance performance, and then set goals, and manage change more impact fully.

According to Fitri et al. (2021), the value of sustainability disclosure is that it ensures organizations consider their impacts on sustainability issues, and enables them to be transparent about the risks and opportunities they face. Sustainability disclosure according to Emeka and Osisioma (2019) is for the most part a voluntary activity with two main goals currently: Documentation and assessment of an organization's environmental and social impact and communication of a company's sustainability efforts and progress to stakeholders. Emeka and Osisioma (2019) posit that sustainability disclosure allows private companies, public and third-sector organizations, to affirm their mission and pursued values, to acknowledge and measure their economic, environmental, social and environmental performance and improvement.

The concept of sustainability disclosure is perceived to be closely related to concepts that describe disclosure of information on sustainability impacts, such as triple bottom line reporting and Corporate Social Responsibility (CSR) reporting. Like sustainability, sustainability reports are voluntarily disclosed by corporations that want to offer additional value and information to their stakeholders concerning the effect their activities and operations have on the society and environment (Garg, 2015). This additional information will provide certain payoffs for the company (Dembo, 2017). The benefits of sustainability reporting and sustainability disclosure include financial payoffs such as lower capital costs and stock market premiums; Customer-related payoffs such as market share increases, improved reputation; Operational payoffs such as Process innovation and improved resources yields; Organizational payoffs such as reduced risk and increased learning (Dembo, 2017).

Sustainability disclosure is all about reporting on how a company portrays itself responsibly in terms of environmental,

social and governance issues. The term has been used in the past to describe a firm's voluntary actions to manage its environmental and social impact and increase its positive contribution to society (Khan, Serafeim, & Yoon, 2015). Sustainability disclosures often involve a mix of quantitative and qualitative information (Schaltegger, 2012). In order to enhance comparability and credibility of sustainability disclosures, there are a lot of regulations and guidelines by different organisations regarding the structure and quality of sustainability disclosure.

According to Global Reporting Initiative GRI (2011) which is based on sustainability reporting guidelines, covers three linked elements of sustainability pertinent to organizations (GRI, 2011) as follows: Economic: includes benefits and wages, labour productivity, creation of jobs, expenditures on research and development as well as investments in training and other forms of human capital. The economic element includes, but is not limited to, financial information. Environmental: including, for example, impacts of processes, products and services on land, air, water, biodiversity and human health. Social: including, for example, workplace safety and health, retention of employees, labour rights, human rights, wages and working conditions at outsourced operations. But in recent time scholars like Zainon et al. (2020) and Yutong (2021) have argued that economic aspect of sustainability can be fused into the governance aspects, noting that, this will improve companies disclosure about the ethics and corporate governance which spurs economic performance of the companies. This enhanced the clamor for recent sustainability disclosure by scholars and policy makers across the globe.

2.1.2 Firm attributes

Firm attributes refer to the various features that enable a firm to be classified as an independent unit that administers the production of goods and services for public consumption. The study reviewed several firm attributes that have been used in extant literature which include leverage, firm size, profitability, liquidity, institutional share ownership, managerial share ownership, board size, board composition, auditor type, industry type, role duality, audit committee ratio among others (Ghasempour & Yusof, 2014; Albitar, 2015; Samaha, Khlif & Hussainy, 2015; Ikpor & Agha, 2016; Nurudeen, Ahnda & Shalli, 2018; Bicr & Milad, 2020). The four main firm attributes with their sub-classifications that have been used in this study namely Market attributes (leverage & firm size); performance

attributes (profitability & liquidity); ownership structure attributes (institutional share ownership& managerial share ownership); governance attributes (board size & board composition). The study adopts these attributes as used in extant literature to examine the effect of firm attributes on voluntary disclosure practices of listed non-financial services companies in Nigeria. The review provides the guidance on which of them should be investigated.

Market attributes refer to the characteristics of a company that can give it an edge over others in the market. The firm attributes used in the study as proxy for market attributes are leverage and firm size. Leverage or gearing is the use of borrowing as a source funding to expand the firm's asset base and generate returns on risk capital. Leverage is an investment strategy of using borrowed money specifically, the use of various financial instruments or borrowed capital to increase the potential return of an investment. Firm leverage indicates the level of indebtedness of the business, which refers to the degree of financial risk that is faced by the business. Business firms perceived by the market as having high levels of leverage are exposed to costs of control. These firms are increasingly motivated for the expansion of voluntary disclosure to reduce control costs that may be incurred by the shareholders when investing in these firms, and also to meet the needs of the creditors and lenders.

Financial performance attributes are qualities, traits, or firm attributes that are required to measure the financial health of the firms. The firm attributes designated used in the study as proxy for performance attributes are profitability and liquidity. Profitability is one of the factors which have been investigated in terms of its association with voluntary disclosure level in various prior studies (Agca & Onder, 2007; Abdel-Fattah, 2008; Hossain, 2008; Enache & Parbonetti, 2011; Kolsi, 2012; Bicer& Milad, 2020). Bicer and Milad (2020) argued that the more profitable the companies, the more likely it is for them to disclose financial information. That is, more profitable firms may expand the disclosure and provide high quality information for the public to acquire a positive impression about their performance. Therefore, signaling theory can be applied to suggest a positive relationship between profitability and voluntary disclosure. It is more likely for highly profitable companies to disclose good news to decrease the risk of getting undervalued (Oliveira et al., 2006). And also, good news firms are encouraged to

screen themselves out from other firms (Marston & Polei, 2004).

The firm attributes that relate to governance attributes are board size and board composition. According to Htay (2012), small boards are more effective in monitoring the chief executive officer and are tougher for the CEO or the chairman to manipulate. Barako (2007) in a similar vein has shown that firms with smaller boards are valued more highly by the market than are their counterparts with larger boards. In addition to the foregoing mechanisms for aligning management and shareholder interests, codes of good governance usually recommend limitations to the size of a board. By restricting the number of directors, it is believed that the exchange of ideas between board members will be enhanced, as well as flexibility in the decision-making process.

2.2 Signaling Theory

The study is anchored on the signaling theory. The signaling theory is propounded by Michael Spence (1973). Signaling theory states that corporate financial decisions are signals sent by the company's managers to Investors in order to shake up these asymmetries. Signaling theory is based on the assumption that information is not equally available to all parties at the same time, and that information asymmetry becomes the central issue in the theory. Through his research on markets with asymmetric information, Spence developed the theory of "signaling" to show how better-informed individuals in the market communicate their information to the less-well-informed to avoid the problems associated with adverse selection of investment portfolios.

Signaling theory elucidates the relationship between firm attributes and sustainability disclosure by emphasizing how companies use disclosure to convey valuable information to investors and stakeholders. When companies voluntarily disclose their sustainability practices, they signal their commitment to long-term sustainability and responsible management, given the availability of resources to the companies (Cheng et al. 2014). Investors interpret this disclosure as a positive signal of the company's alignment with societal expectations, risk management practices, and potential for sustainable growth. Consequently, companies with robust sustainability disclosures tend to attract socially responsible investors, leading to increased demand for their shares and a higher market value (Manuel et al., 2014). Thus, signaling theory underscores the importance of firm attributes in enhancing

transparent sustainability disclosure and enhancing investor confidence.

Critics of using signaling theory to study sustainability disclosure and firm attributes argue that it oversimplifies the complex relationship between disclosure and firm attributes (Brammer & Pavelin, 2008). Brammer and Pavelin (2008) contend that while sustainability disclosure may signal a company's commitment to sustainability, it does not guarantee actual environmental or social impact. Moreover, Atanda et al. (2020) highlight the potential for greenwashing, where companies strategically disclose sustainability information to improve their image without using their attributes to implement substantive changes. Additionally, signaling theory may neglect other factors influencing investor decisions, such as financial performance or regulatory compliance. Therefore, while signaling theory offers insights, critics caution against relying solely on it to understand the effect of firm attributes of sustainability disclosure.

3.0 Empirical Review

Scholars globally, have studied the effect of firm attributes on sustainability disclosure of firms. Some of the works in this regard are revealed below in an ascending order from the most recent to the least year. The studies provided rich evidence on how different firm attributes affect sustainability disclosure of companies. The major attributes used by past scholar are the market attributes, the financial attributes and the governance attributes while the major sustainability disclosure explored by the past scholars is the environmental and social disclosures.

Douye and Gospel (2023) investigated the effect of corporate attributes (firm size, firm age and leverage) on social sustainability performance disclosures in Nigeria. A checklist based on the global reporting index was used in analyzing 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. Regression technique with Newey West robust standard errors was used to analyze the data collected. Findings showed that firm size, firm age and leverage, each had a positive effect on social sustainability performance disclosures in manufacturing

firms in Nigeria, leading to the conclusion that firm characteristics have significant effect on sustainability disclosures.

Godspower and Agbonrha (2023) examine firm attributes and environmental reporting disclosures. The study employs an ex post facto design. As of 2020, the Nigerian Exchange Group (NGX) listed 110 non-financial companies. ESI and non-ESI companies were divided. ESI firms are oil and gas, and industrial goods companies, while non-ESI firms are other non-financial firms listed in the NGX from 2011 to 2020. The study purposively samples 23 ESI and 23 non-ESI firms. The Double-Hurdle technique can determine whether a set of factors affects the extent of disclosures, eliminating the need for Probit and Tobit (Binary) regression's restrictions. From the study findings, Firm size and profit are significant determinant of both the decision to disclose and the extent of disclosure; financial leverage is a significant determinant of disclosure, but does not determine the intensity of disclosure.

Razaq (2023) examined the effect of corporate attributes on sustainability reporting of listed non-financial firms in Nigeria. Secondary data was sourced from the audited financial reports of sample firms. Panel data least square multiple regression was employed for the analysis. The outcomes showed that profitability, firm size, and liquidity maintain positive and statistically significant relationships with sustainability reporting and assets tangibility has a negative and statistically significant relationship with sustainability reporting while age of the business has negative but not significant effect on sustainability reporting. The findings also show that growth rate, financial leverage, free cash flow and business risk have positive but no significant relationships with sustainability reporting of the sampled companies.

Okoba and Chukwo (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. Regression technique with Newey

West robust standard errors was used to analyse the data collected. Findings showed that firm size, firm age and leverage, each had a positive effect on social sustainability performance disclosures in manufacturing firms in Nigeria, leading to the conclusion that firm characteristics have significant effect on sustainability disclosures.

Githaiga and Kosgei (2023) investigated the influence of board characteristics on sustainability reporting among listed firms in East Africa. The study uses a sample of 79 listed firms drawn from East African securities exchanges and data from 2011 to 2020. Sustainability reporting is measured using Global Reporting Initiative, and the data is analyzed by using three-panel data estimation models – fixed effect, random effect and the generalized method of moments. The results reveal that board gender diversity, board financial expertise and board independence are positively and significantly associated with sustainability reporting. Conversely, board size has a negative and significant effect on sustainability reporting.

Olayinka (2022) examined the impact of corporate governance on sustainability reporting of listed firms. This study explored the effect of corporate governance dimensions on sustainability reporting. The study adopted ex-post facto research design. The population of the study comprised 169 quoted companies on the Nigerian Stock Exchange (NSE) as at December 31, 2019. A sample of 42 quoted companies that had complete and relevant data for the period of study (2010-2019) was selected through stratified and purposive sampling techniques. Data were extracted from published audited annual reports of firms and Global Reporting Initiative (GRI-4) performance indicators. Data were analyzed using descriptive and multiple regression. The findings revealed that corporate governance had positive and significant relationship with sustainability reporting of selected quoted companies in Nigeria. This implies that, board size, board independence, female directorships and board ownership are significant factors influencing changes in sustainability reporting. However, CEO duality does not significantly influence changes in sustainability reporting. The study concluded that corporate governance affects sustainability reporting.

Adekanmi, (2022), delved into the effect of firm's attributes on sustainability reporting of non-financial firms listed on the Nigerian Stock Exchange (NSE) between 2006-2020. The study population comprised of (113) listed non-financial firms. The sample size was made up of (76) listed non-financial firms out of the

total population. Taro Yamane technique was employed in the determination of the sample size. Secondary data was sourced from the audited financial reports of sample firms. Panel data least square multiple regression was employed for the analysis. The outcomes show that profitability, firm size, and liquidity maintain positive and statistically significant relationships with Sustainability and assets tangibility has a negative and statistically significant relationship with Sustainability while age of the business has negative but not significant effect on Sustainability. The findings also show that growth rate, financial leverage, free cash flow and business risk have positive but no significant relationships with Sustainability of the sampled companies.

Kanchana and Lakshan. (2021) investigates the relationship between sustainability reporting (SR) and firm characteristics of listed companies in Sri Lanka. Secondary data was drawn from 50 companies listed at the Colombo Stock exchange, Sri Lanka. The data was collected for 5 years from 2016 to 2020. SR was measured using a SR disclosure index. Company size (CS), industry type (IT), board size (BS), profitability (PR), leverage (LV), audit committee size (AC), liquidity (LQ) and dividend yield (DY) were taken as firm characteristics. Multiple regression method was used for analysis and the results reveal that AC and LV have positive relationship with sustainability reporting disclosures while CS, IT, BS, PR, LQ and DY have no significant relationship.

Maryana, Yenni and Carolina (2021), examined the impact of firm size, leverage, firm age, media visibility, and industry affiliation on sustainability reporting disclosure as measured by the score of the GRI indicator. The study uses multiple linear regressions with E-views software. The study also utilize pollution from firms that are admitted to the LQ 45 index listed on the BEI from 2014 to 2018. 18 firms were selected using purposive sampling method. The results show that firm size, leverage, firm age, media visibility and profitability have a significant impact on SR disclosure. Leverage and Firm Age have a negative and significant impact on SR disclosure, while profitability has a positive and significant impact on SR disclosure.

Tiamiyu, Oyedokun and Adeyemo, (2021), probes into relevant firm characteristics capable of enhancing sustainability disclosure to avert or minimize hazards associated with manufacturing firms in Nigeria. Data was collected from secondary sources but mainly from annual

reports and accounts of selected manufacturing firms. Panel regression model was adopted for data analysis. The findings revealed that corporate governance (proxy by board size and board independence) affects sustainability reporting of listed manufacturing firms in Nigeria negatively. The study further established a positive association between firm growth and sustainability reporting while the study finds no statistical association between firm size and sustainability reporting. The study recommends that companies should restrain from acquiring additional assets while placing emphasis on managerial efficiency. More experts should be appointed into the corporate governance board for possible influence on managerial decisions. Lastly, firm performance should be enhanced through increase revenue generation.

Abubakar, Abdulkarim and Jacob (2022) examined the effect of corporate attributes on sustainability reporting of listed non-financial firms in Nigeria. The study measured corporate attributes with firms' attributes (firm size, profitability, leverage, liquidity), board attributes (board size, board independence, board gender diversity, board financial expertise) and ownership attributes (foreign, managerial, institutional, ownership concentration) and sustainability reporting measured by sustainability disclosures in line with Global Reporting Initiative (GRI) standards. The study adopted ex-post facto research design relying on secondary data obtained from annual reports of the population, which comprised of 116 non-financial firms listed on the Nigeria Exchange Group (NGX) as at 31st December 2020 with sample size of 51 firms, covering the period of 2011 – 2020. The study employed the use of multiple regression panel model to analyze the data using E-view 10 statistical tool. According to the results of random effect regression, profitability, liquidity, leverage, institutional ownership, firm size, foreign ownership, board size and board financial expertise have positive and significant effect on sustainability reporting.

Adekanmi (2022) assessed the effect of firm's attributes on sustainability reporting of non-financial firms listed on the Nigerian Stock Exchange (NSE) between 2006 and 2020. The study population comprised of (113) listed non-financial firms. The sample size was made up of (76) listed non-financial firms out of the total population. Taro Yamane technique was employed in the determination of the sample size.

Bagu and Ahmad, (2022) examines the effect of firm characteristics on sustainability reporting of listed manufacturing firms in Nigeria. The population comprises 56 quoted manufacturing firms in Nigeria while all the population was sampled using the census method covering the periods of 2009 to 2019. The data were analyzed using independent observations test, variance inflation factor test while logistic regression model was used to test the formulated null hypotheses. The results show that profitability has a significant positive effect on corporate sustainability reporting of quoted manufacturing firms in Nigeria for the period under review while leverage has an insignificant negative effect on corporate sustainability reporting (CSR) of quoted manufacturing firms in Nigeria.

Onovo (2022) investigated the effect of corporate characteristics on environmental reporting of beverage companies in Nigeria. Firm age, firm size and ROA were used to proxy corporate characteristics, while employee health and safety cost disclosures, waste management and remediation cost disclosure and donations and charity contribution cost disclosures served as proxies for the dependent variable – financial performance. The study selected all 3 companies out of four (4) quoted beverage companies in Nigerian Exchange Group (NGX) as at 2021. Ex Post Facto research design was adopted and the secondary data were collected from annual reports of sampled firms from 2010 to 2019 through content analysis. The data were analyzed with descriptive statistics and regression analysis. E-view version 8 was applied in testing the hypotheses. The study showed that Sustainable firm age has a significant positive effect on employee health and safety cost disclosures, while firm size has a significant positive effect on waste management and remediation cost disclosure. The study also revealed that ROA has no significant positive effect on donations and charity contribution cost disclosures.

Faozi, Tamer, Farah, Yasser and Mazrou (2022) analyzes the impact of environmental disclosure, board attributes, and firms' specifics on the levels of environmental, social, and governance (SUSTAINABILITY) performance in Europe and Asia. The study utilizes secondary data from Refinitiv Eikon database for 8094 firms for the period between 2016 and 2021. The study employs panel data analysis using fixed effect models to estimate the results. The findings suggest that disclosure on emissions, innovations, environmental

controversies, environmentally friendly products, proactive environmental investments, environmental expenses, and fines charged by authorities have a positive and significant influence on the level of firms' environmental and sustainability performance. Furthermore, the study identifies board tenure, independence, size, and meetings as being associated with greater levels of environmental disclosures, reporting, and sustainability score. However, board diversity is found to have a limited contribution to environmental disclosures, especially in Asian countries. Additionally, the results reveal that companies with higher revenue growth, larger size and market capitalization, and better performance have greater and better disclosure of environmental and sustainability issues.

3.0 Methodology

3.1 Study Design

The study adopts the quantitative research approach, based on an ex-post facto research design. The population of the study consists of 56 manufacturing companies listed on the Nigerian Exchange Group (NGX) as at 31st December, 2024. The sample size for the study consists of 30 companies. The study adopted the non-probability (Judgemental) sampling technique in selecting 30 companies as sample size. This study used secondary data. The secondary data for the independent variable firm attributes and the dependent variable (Sustainability) is sourced from each listed company's audited annual report available at NGX. For the purpose of this seminar, the study's sustainability variables are restricted to only environmental disclosure.

The table 1 shows how these variables are measured.

Table 1: Measurement of Variables

Name	Variable	Measurement	Source
Environmental disclosure	Dependent	"1" in cases where every criterion is disclosed and cl in the companies' annual reports. It is coded "0" if it i disclosed and explained.	GRI 2018
Share price	Market Attribute	The reported amount of share price on the NexG	Emeka-Nwoke (2017)
Leverage	Market Attribute	Total debt divided by total equity	Eccles et al (2014)
Liquidity	Financial Attribut	Current assets divide by current liability	Dilling (2010)
Profitability	Financial Attribut	Total profit after tax divide by total assets	Whetman (2018)
Board Size	Governance Attri	Total number of board members	David et al (20
Board composition	Governance Attri	Number of non-executive directors to executive directors	Dabor (2015)

Source: Author's compilation (2025)

This study used the panel regression models. The specification for model is explained as follows:

$$END_{it} = \alpha + \beta_1 SHP_{it} + \beta_2 LEV_{it} + \beta_3 PRF_{it} + \beta_4 LIQ_{it} + \beta_5 BDS_{it} + \beta_6 BDC_{it} + U_{it} \quad \text{i}$$

where;

END = Environmental Disclosure

SHP = Share Price

LEV = Leverage

PRF = Profitability

LIQ = Liquidity

BDS = Board Size

BDC = Board Composition

α = Constant

β_1- β_6 = Slope Coefficient

μ = Stochastic disturbance

i = i^{th} company

t = time-period

All hypotheses are carried out at 5% level of significance using STATA 12.1

software. The decision rule will be to accept the null hypothesis if the calculated p-value/z-value is greater than 0.05.

4.0 Data Analysis

This section presents the data used for the study analysis. Due to the fact the data is large, it is presented in the study appendix I for perusal. The section presents both the descriptive statistics for each variable, the panel regression and multiple regression analyses for the two models specified. The analyses are presented as follows:

4.1 Descriptive Statistics

Under this sub-section, the study conducts a descriptive statistics of the data used for analysis in this study. This pertains to the minimum (Min), Maximum (Max), Mean and Standard deviation (Std.) for each variable.

Table 2: Descriptive Statistics of the Variables

	Min	Max	Mean	Std.	Obs.
EVD	0.1363636	0.8181818	0.5068871	0.1466898	330
SHP	.21	315.89	40.48	57.69	330
LEV	0.0012201	1.447113	0.4118888	0.316842	330
PRF	-0.021461	0.9793361	0.1061208	0.1460072	330
LIQ	0.004946	2.55487	0.9768201	0.4073048	330
BDS	5	17	10.29697	2.713748	330
BDC	0.0666667	0.428571	0.2256989	0.1474877	330

Source: Stata output in Appendix II

Table 2 shows the result of the descriptive statistics. The number of observation for each variable is 330. This means that the study data was collected over a panel of 30 manufacturing companies for 11 years (2013-2023).

For the dependent variable, the Table reveal a minimum value of 0.1363636 index and a maximum value of 0.8181818 index for Environmental Disclosure (EVD). The result further reveal a mean value of 0.5068871 index for EVD with a standard deviation of 0.1466898. For the independent variables, Table 6 reveals that, share price (SHP) has a minimum value of 21 Kobo and a maximum value of 315.89 Naira. SHP further shows a mean value of 40.48 Naira with a deviation of 57.69 Naira. Leverage (LEV) has a minimum value of 0.0012201 ratio and a maximum value of 1.447113 ratio. LEV further shows a mean value of 0.411888 ratio with a deviation of 0.316842 ratio. Profitability (PRF) has a minimum value of -0.021461

ratio and a maximum value of 0.9793361 ratio. PRF further shows a mean value of 0.1061208 ratio with a deviation of 0.1460072 ratio. Furthermore, liquidity (LIQ) has a minimum value of 0.004946 ratio and a maximum value of 2.55487 ratio. LIQ also shows a mean value of 0.9768201 ratio with a deviation of 0.4073048 ratio. More so, board size (BDS) has a minimum value of 5 and a maximum value of 17. BDS further shows a mean value of 10.29697 with a deviation of 2.713748. Lastly, board composition (BDC) has a minimum value of 0.0666667 ratio and a maximum value of 0.428571 ratio. BDC further shows a mean value of 0.2256989 ratio with a deviation of 0.1474877 ratio.

The higher deviation shown by the companies' SHP and PRF shows that there is high difference in respect to the share price and profitability of the companies under study. This could due to the fact that other companies have higher market value and make more profit as compared to others in the manufacturing industry which points to the heterogeneity of the data collected for the study.

4.1.1 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, and the heteroscedasticity test.

a) 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 skewedness and probability of Kurtosis test as data normality tests are employed. The Skewness statistics test is presented in Table 3:

Table 3: Data normality

Variables	**Pr. Skewedness**
EVD	0.0004
SHP	0.0016
LEV	0.0000
PRF	0.0000
LIQ	0.0106
BDS	0.0000
BDC	0.0000

Source: STATA output in appendix II

The result of skewness in respect to the study variables reveals that the set of data has outliers which may distort the outcome of the regression result if further checks are not put in place. To do this, the study carried out a physical verification of data and venting to filter out cases of extreme should they not align with the stipulated formula. This was done and no data was deleted as all the data met the required criteria. Thus, the reason for the non-stationarity is the fact that companies are not restricted by laws to perform or report within stipulated units thus the inevitable case of having disparity units of firm attributes and sustainability proxy. Regardless, further pre and post regression test are put in place to ensure validity of the regression outcome despite the non-stationary data used for the study analysis.

b) Multicollinearity test

Two tests are carried out to determine the presence or absence of multicollinearity in the data used in this study. They are correlation analysis and variance inflation factor (VIF).

i. Correlation analysis

Table 4: Correlation results

	SHP	LEV	PRF	LIQ	BDS	BDC
SHP	1.0000					
LEV	0.1357	1.0000				
PRF	0.2055	0.0661	1.0000			
LIQ	0.0273	-0.0326	0.0343	1.0000		
BDS	0.1836	0.0609	-0.0609	0.0037	1.0000	
BDC	-0.2157	-0.0132	-0.0132	0.0611	0.0290	1.0000

Source: STATA Output in appendix II

The correlation matrix in Table 4 shows the absence of a variable to influence the outcome of another among the explanatory variables. The highest correlation is estimated at 0.2055<0.75 between SHP and PRF. Correlation statistics that are above 0.75 are considered harmful for analysis (see Gujarati & Sangeeta, 2007) but this is not the case with the current study.

ii. Variance Inflation Factor (VIF)

Table 5: VIF result

TEST	SHP	LEV	PRF	LIQ	BDS	BDC
VIF	1.17<10	1.02<10	1.09<10	1.01<10	1.08<10	1.06<10

Source: Stata output in appendix II

To further establish the absence of multicollinearity, the study re-test the independent variables at post regression level using the VIF test. Table 5 shows that, the regression models are free from multicollinearity given a respective VIF values for all the independent variables that are <10.

c) Heteroscedasticity test

The study employs Breusch-Pagan Cook test to ascertain the presence or absence of heteroscedasticity in the regression model specified.

Table 6: Heteroscedasticity Result

	Breusch-Pagan-Cook Weisberg Test	Decision	Robustness	Decision
Model 1	Prob. 0.4110	Appropriate	Nil	Nil

Source: Stata Output in Appendix II

From Table 5, it can be observed that the three models specified have no issues of heteroscedasticity since their respective probability values are not significant at 0.4110>0.05 for model 1, 0.5089>0.05 for model 2, and 0.2692 for model 3. The absence of heteroscedasticity for the three models clearly shows that the sampled companies data are fit for analysis using an OLS panel regression model.

4.2 Regression of the estimated model summaries

Table 7: Pre regression estimation test

	Statistic	P-value
i.	Hausman Test	0.7874
ii.	Lagrangian Test	0.0000
	Decision	Random effect regression

Source: STATA Output in appendix II

The result of the Hausman specification test from Table 7 shows a probability value of 0.7874>0.05 which is insignificant thus informs the preference of the random-

effect model from the Hausman test. To choose between the random effect and pooled model, the Lagrangian test conducted revealed a probability value of 0.0000 which informs the study's final decision to choose the random effect model. This signifies that the set of data for the manufacturing companies have companies-specific variance in measurement of the variables that are considered in the regression model. Thus, the random effect model is analyzed below:

Table 8: Regression Result

S/N	Statistic	Random
1	R-Square (Between)	0.1199
2	Chi-Prob	0.0306
3	Wald-Stat	13.92
4	Coef (Prob)	
	SHP	-0.0082125 (0.708)
	LEV	-0.0369069 (0.174)
	PRF	-0.156127 (0.012)
	LIQ	0.0188443 (0.301)
	BDS	-0.1183187 (0.253)
	BDC	0.0759496 (0.103)
	_Cons	0.6303861 (0.000)

Source: Extract from Stata Output in Appendix II

Table 8, presents the regression result between SHP, LEV, PRF, LIQ, BDS, BDC and EVD. From the model summary in Table 8, the following information is distilled.

The R^2 value of approximately 0.1199 indicates that 11.19% of the variation in the EVD of the listed manufacturing companies is explained by variation in firm attributes, while the remaining 88.81% (i.e. 100-R^2) could be accounted by other variables not included in this model like other external economic factors and government regulations. The regression results further shows that, when all the independent variables are held stationary or without the variable intercept model (Constant); the EVD variable is estimated at 0.6303861 index. This simply implies that, when all independent variables are held constant, there will be increase in the *EVD* of listed manufacturing companies up to the tune of 0.6303861 index occasioned by factors not incorporated in this study. Thus, a unit increase in SHP will lead to decrease in

EVD by 0.8%. Also, a unit increase in LEV will lead to decrease in EVD by 3.6% and a unit increase in PRF will lead to decrease in EVD by 15.6%. Furthermore, a unit increase in LIQ will lead to increase in EVD by 1.8%. Also, a unit increase in BDS will lead to decrease in EVD by 11.8% but a unit increase in BDC will lead to increase in EVD by 7.5%.

Finally, the result shows that there is a significant variation of Wald Stat. (13.92) at a probability value of 0.0306 which means the model as a whole is statistically fit.

4.3 Test of Hypotheses

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

Ho_1: Market attributes (share price and leverage) has no significant effect on environmental disclosure of listed manufacturing companies in Nigeria.

The result shown in Table 8 reveals a P-value of 0.708>0.05 and 0.174>0.05 for SHP and LEV against EVD. The null hypothesis is accepted in this case; which means that, market attributes (SHP & LEV) has no significant effect on environmental disclosure of listed manufacturing companies in Nigeria.

Ho_2: Financial attributes (profitability and liquidity) has no significant effect on environmental disclosure of listed manufacturing companies in Nigeria.

The result shown in Table 8 reveals a P-value of 0.012<0.05 and 0.301>0.05 for PRF and LIQ against EVD. The null hypothesis is accepted in the case of PRF while it is rejected in the case of LIQ. This means that, for financial attributes, profitability has a significant effect while liquidity has no significant effect on environmental disclosure of listed manufacturing companies in Nigeria.

Ho_3: Governance attributes (board size and board composition) has no significant effect on environmental disclosure of listed manufacturing companies in Nigeria.

The result shown in Table 8 reveals a P-value of 0.253>0.05 and 0.103>0.05 for BDS and BDC against EVD. The null hypothesis is accepted in this case. This means that, governance attributes (BDS and BDC) has no significant effect on environmental disclosure of listed manufacturing companies in Nigeria.

5.0 Conclusion

The major conclusions reached in this study are that:

i. Market metrics do not strongly influence commitment to transparent environmental disclosure of listed

manufacturing companies in Nigeria.

ii. More profitable manufacturing companies engage in higher environmental disclosure practices while the listed manufacturing companies' ability to meet short-term financial obligations does not strongly influence their decision to disclose environmental information.

iii. The composition and size of board do not strongly influence decision to disclose environmental information by listed manufacturing companies in Nigeria.

6.0 Recommendations

The recommendations of this study are based on the outcome of the findings and conclusions made herein. The recommendations are made as follows:

i. Managers of listed manufacturing companies should prioritize voluntary environmental disclosures despite the study's finding of an insignificant effect of market attributes. Transparent reporting demonstrates accountability, enhances corporate reputation, and builds stakeholder trust. It can also preempt regulatory pressures and align with global sustainability trends, ensuring long-term competitiveness.

ii. Managers of listed manufacturing companies should prioritize profitability enhancement over too much emphasis on liquidity, as it enables greater investment in environmental disclosure. By transparently communicating environmental practices, firms will boost stakeholder trust, attract eco-conscious investors, and comply with regulatory standards.

iii. To enhance transparency and sustainability, companies should prioritize integrating robust environmental policies, stakeholder engagement, and targeted training programs that foster a culture of environmental accountability beyond board composition or size.

References

Abdel-Fattah & Tareck, M. H. (2008). Voluntary Disclosure Practices in Emerging Capital Makets: The Case of Egypt. *International Journal of Accounting,* 3 (2), 321-362.

Abubakar. G., Abdulkarim, A., & Jacob. J. (2022). Effect of corporate attributes on sustainability reporting of listed non-financial firms in Nigeria. *JEGHF,* 2(2), 23-37.

Adekanmi, A.D. (2022). Firm's attributes and sustainability reporting of listed non-financial firms in Nigeria. *KIU Interdisciplinary Journal of Humanities and Social Sciences,* 3 (1), 346 -366.

Agca, A., & Onder, S. (2007). Voluntary Disclosure in Turkey: A Study of Firms Listed in Istanbul Stock Exchange. *Management*, 5, 241-251

Aggarwal, P. (2013). Corporate governance and corporate profitability: Are they related? A study in Indian context. *International Journal of Scientific and Research Publications,* 3(12), 1 – 8.

Albitar, K., Hussainey, K., Kolade, N., & Gerged, A. (2020). Sustainability disclosure and firm performance before and after IR: The moderating role of governance mechanisms. *International Journal of Accounting and Information Management*, 28(2), 1-21.

Atanda, F.A., Osemene, F., & Ogundana, H.F. (2020). Sustainability reporting and firm value: Evidence from selected deposit money banks in Nigeria. *Global Journal of Accounting, 7(1),* 47 – 68.

Bagu, A., & Ahmed, A. (2022). Effect of firm characteristics on sustainability reporting of listed manufacturing firms in Nigeria. *AERR,* 1(3), 23-32.

Barako, D.G. (2007). Corporate Strategic Information Disclosure and Earnings Management: Evidence Uganda Securities Exchange. African Journal of Business Mnagement, 1(5), 1113-128.

Benjamin, U.D., Okpanachi, J., Nyor, T., & Muhammad, M.L. (2017). Effect of firm characteristics on environmental reporting practices of listed manufacturing firms in Nigeria. *Nigerian Journal of Management Sciences,* 6(1), 140-148.

Brammer, S., & Pavelin, S. (2008).Voluntary environmental disclosure by large scale UK companies. *Journal of Business Finance and Accounting, 3(8),* 1168-1188.

Cheng, B. Loannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to Finance. *Strategic Management Journal,* 35(1), 1 – 23.

David, C., Chang, Y., & Low, S. (2021). Corporate governance mechanisms with firm performance: A study on Malaysia's and Hong Kong's real estate investment trust public listed companies. *Journal of Governance Risk Management Compliance and Sustainability*, 1(1), 62-75.

Dembo, A.M. (2017). The Impact of Sustainability Practices on the Financial Performance: Evidence from Listed Oil and Gas Companies in Nigeria. *Springer Nature Link*. 215-233.

Douye, O., & Gospel, J. (2023). Firm characteristics and social sustainability performance disclosures in Nigeria. *Journal of Accounting and Management 6*(1)111-132.

Elkington, J. (1997). Cannibals with Forks: The Triple Bottom Line of 21st Century Business, Oxford: Capstone Publishing, Oxford, UK.

Emeka-Nwokeji & Osisioma, (2019). Sustainability disclosures and market value of firms in emerging economies. *Finance and Accounting Research Monitor, Special Edition.* 227-241.

Emeka-Nwokeji, N. (2017). Corporate governance and firm value: Evidence from quoted in Nigeria. *Finance and Accounting Research Monitor, Special* Edition, 227 – 241.

Emeka-Nwokeji, N. A. & Osisioma, B.C. (2019).Sustainability disclosure and market value of firms in emerging economy: Evidence from Nigeria. *European Journal of Accounting, Auditing and Finance Research, 7(3),* 1-19.

Enache, Z., & Parbonetti, B. (2008). Impact of corporate governance on voluntary disclosure of listed industrial goods companies in Nigeria. *African Journal of Management and Business,* 15(1), 224-239.

Faozi A. A., Tamer, E., Farah, A., Yasser, S., & Mazrou, A. (2022). Impact of corporate environmental disclosure practices and board attributes on sustainability: Empirical evidence

from Asia and Europe. *JBERR,* 3(2), 30-45.

Firms in Nigeria. *International Journal of Science and Research Publication,* 8(6), 2250-3153.

Fitri, I., Nurlis, O., &, Yanti, T. (2021). Sustainability reports and its impact on firm value in non-financial companies: evidence from Indonesia. *International Journal of Management Studies and Social Science Research, 3(5),* 42 – 58.

Folashade, A., Abeer, H., & Mary, F. (2018). Corporate governance disclosure in Nigerian listed companies. *International Research Journal of Business Studies, 11(2),* 67 – 80.

Garg, P. (2015). Impact of sustainability reporting on firm performance of companies in India. *International Journal of Marketing and Business Communication, 4(3),* 38 – 45.

Ghasempour, A., & Yusof, M. A. (2014). Quality of Intellectual Capital and Human Resource Disclosure on the Firm Valuation. *Open Journal of Accounting*, 3(2), 59-70.

Githaiga, A., & Kosgei, T. (2023). Influence of board characteristics on sustainability reporting among listed firms in East Africa. *International Journal of Financial Management and Economics*, 5(1), 49-55.

Godspower, E., & Agbonrha, O. (2023). Firm attributes and environmental disclosures: A double-hurdle regression approach. *International Journal of Innovative Research in Accounting and Sustainability,* 8(2) 2023-2037

Hossain, D. M. (2008). Qualitative Research Process. *Postanodern Openings*, 7 (7), 143-155.

Htay, S.N., Syed, A.S., & Meera, A. K. (2013). Let's move to universal corporate governance theory, Middle – East. *Journal of Scientific Research, 15(7),* 1047 – 1053.

Ikpor, I. M., & Agha, N. (2016). Determinants of voluntary disclosure quality in emerging economies: evidence from firms listed in Nigeria Stock Exchange. *International Journal of Research in Engineering and Technology*, 4(6), 2347-4599.

Junius D., Adisurjo, A., & Rijanto, Y. (2020). The impact of sustainability performance to firm performance and market value. *JAA*, 5(1), 26-47.

Kanchana, G.T., & Lakshan, A.M. (2021). Nexus of Firm Characteristics and Sustainability Reporting

Disclosures. *7th International Conference for accounting researchers & educators, Department of Accountancy (ICARE 2021), Faculty of Commerce and Management Studies, University of Kelaniya, Sri Lanka.*

Khan, M., Serafeim, G., & Yoon, A. (2015). Corporate Sustainability: First evidence on materiality. *The Accounting Review*, 2(3), 34 – 45.

Kolsi, M. C. (2012). The impact of corporate governance mechanisms on audit quality: evidence from Tunisia. *The IUP Journal of Corporate Governance*, 3 48-70.

Manuel, C.B., Catarina, D., So´nia, F.G., & Teresa, C.P. (2014). Factors influencing the assurance of sustainability reports in the context of the economic crisis in Portugal. *Managerial Auditing Journal, 29*(3), 237-252.

Mapparessa, N., Bakry, M.I., Totanan, C., Mile, Y., & Arumsari, A. (2017). Effect of political visibility, company characteristics and gender diversity to sustainability report disclosure. *International Journal of Civil Engineering and Technology*, 8(9), 1019-1028.

Marston, C., & Polei, A. (2004). Corporate Reporting on the Internet by German Companies. *International Journal of Accounting Information System*, 5, 285-311

Maryana, Y. (2021). Impact of firm size leverage firm age media visibility and industry affiliation on sustainability reporting disclosure. *Jurnal Keuangan dan Perbankan*, 25(1), 36-47.

Nguyen, A.H., & Nguyen, L.H. (2020). Determinants of sustainability disclosure: Empirical evidence from Vietnam. *Journal of Asian Finance, Economics, and Business*, 7(6), 73.

Nurudeen, Ahnda & Shalli. (2018). The impact of firm characteristics on the voluntary disclusure of information by listed financial service firms in Nigeria. www.afropolitanjournals.com.

Ogunmodede, E.O., Ibukun-Falayi, O.R., & Alake, S.F. (2024). Firms attributes and sustainability disclosures a study of less sensitive environmental sector in Nigeria. *European Journal of Accounting, Auditing and Finance Research*, *12*(6), 17-31.

Okoba, D., & Chukwo, J. (2023). Firm characteristics and social

sustainability performance disclosures in Nigeria. Fuoye Journal of Accounting and Management, 6(1), 111 – 132. https://fjam.fuoye.edu.ng/index.php/fjam/issue/view/10

Olayinka, A. (2022). Impact of corporate governance on sustainability reporting of listed firms. *Advances in Social Science, Education and Humanities Research,* 544 (ICAST – SS 2022).

Omesi, I., & Berembo, A. P. (2020). Social accounting and financial performance of oil and gas companies in Nigeria. *European Journal of Business, Economics and Accountancy,* 8(1), 29-41.

Onmonya, L., Mukhtar, S.S., & Ebire, K. (2018). Effect of divided policy on the performance of listed oil and gas firms in Nigeria. International Journal of Scientific and Research Publications, 8(6), 289-302

Onovo (2022) Effect of corporate characteristics on environmental reporting of beverage companies in Nigeria. *International Journal of Management,* 5(1), 49-55.

Onyekwelu, U.L., Eneh, G.N., & Okechukwu, E.U. (2018). Analytical review of the effect of corporate social reporting disclosures on performance of firms in the financial sector in Nigeria. *Research Journal of Finance and Accounting,* 9(6), 31-38.

Panggabean, R. R. (2018). The Effect of Firm Characteristics and Corporate Governance to Sustainability Report Disclosure. *Social Economics and Ecology International Journal*, 2(1), 18-18.

Razag, G., Alhasan, A., & Omole, P.M. (2023). Corporate Governance Mechanisms and Sustainability Reporting Practices of Listed Non-Financial Firms in Nigeria. *FUDMA Journal of Accounting and Finance Research,* 1.1-18

Samaha, K., Khlif, H., & Hussainey, K. (2015). The impact of board and audit committee characteristics on voluntary disclosure. *Journal of International Accounting, Auditing and Taxation*, 24.13-28

Schaltegger, S. (2012). *Sustainability reporting in the light of business environments: Linking business environment, strategy, communication and accounting.* Lueneburg: Centre for Sustainability Management (CSM).

Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics,* 87(3), 355-374.

Tiamiyu, M.A., Oyedokun, G., & Adeyemo, A. (2021). Firm characteristics and sustainability reporting of listed manufacturing companies in Nigeria. *Afar multidisciplinary Journal of Management Sciences,* 3(1), 22-35.

Yutong, M. (2021). *The relationship between corporate environmental, social, and governance performance and financial performance before and after the 2008 financial crisis.* (Graduate's thesis, Georgetown University).

Zainon, S., Ismail, N., Nawi, S., Mohamad, R., Misman, F., & Zakaria, N. (2020). Environmental social and governance disclosures on financial performance of public listed companies in Malaysia. *Asia-Pacific Management Accounting Journal,* 15(3), 88-101.

Zhao, B., & Olivera, F. (2006). Error Reporting in Organizations. The Academy of Management Review, 31(4), 1012-1013