



FIRMS AGE AND BOARD EXPERTISE EFFECT ON SUSTAINABILITY DISCLOSURE IN NIGERIA-LISTED MANUFACTURING FIRMS

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ABSTRACT

This study examined board's expertise on the sustainability disclosure of listed Nigerian manufacturing firms. This study used an ex-post facto research design with a population of 34 consumer goods and industrial goods firms with a sample size of 16 firms selected using purposive sampling. This study utilized the annual reports of these firms from 2013 to 2023 to gather necessary data, employ multiple regression techniques, and analyze the data through STATA software 13. The result revealed that board expertise and firm age have a negative and significant effect on sustainability disclosure when used directly. The results also found that the interaction between board expertise and firm age reveals a significant positive moderating effect. This study concludes that board expertise and firm age have a negative influence on sustainability disclosure. However, the interaction between board expertise and firm age is positive and significant, suggesting that firm age has a moderating effect and strengthens the positive effect of board expertise on sustainability disclosure. This study recommends that it is better to maximize the use of boards' expertise to enhance sustainability reporting, especially in older firms where the benefit of experience can be of added value in enhancing structures of good governance. Furthermore, older firms should try to increase the degrees of sustainability disclosure since such firms have more experience and industry tenure compared to young firms.

Keywords: *Firms Age, Board Expertise, Sustainability Disclosure, Manufacturing Firms*

Introduction

Sustainability reporting has become a significant part of the strategic and yearly reporting of organizational performance concerning the firm's environmental, social, and governance standards (ESG) standards (Grewal & Serafeim, 2020). With the global dissemination of the concept of sustainable development, interest in companies' sustainability activities has become



more and more transparent. The manufacturing sector, which is an important sector in the Nigerian economy, is also experiencing increasing pressure to conform to the practice of sustainability reporting (Amran & Haniffa, 2011). This has culminated in an emphasis on the factors that determine the degree and quality of sustainability reports among the Nigerian-listed manufacturing firms (NMFs) (Ihugba et al., 2019).

Sustainability disclosure refers to the act whereby companies disclose information to their stakeholders about their ESG (Clarkson et al., 2011). It specifically includes environmental information, information about social activities, and information about governmental activities (KPMG, 2020). The commensurate level of sustainability reporting is progressively increasing in Nigeria due to the set regulations and increasing stakeholders' demands (Onyali & Okafor, 2019). Conventional wisdom suggests that good sustainability disclosure can improve a firm's image, attract investors with an interest in such reports, and bring about sustainability and therefore long-term organizational success (Cheng et al., 2014). Nevertheless, the extent of these disclosures differs from firm to firm, and this has raised questions as to what might be the cause of this situation (Ezeagba et al., 2017).

In line with the paper's propositions and prior literature (Hillman and Dalziel, 2003), board expertise is a viable antecedent to organizational strategic positioning and managerial control systems. The board of directors' knowledge and skills, especially as they pertain to sustainability, can either positively or negatively impact a firm's sustainability disclosure practices (Michelon & Parbonetti, 2012). It is therefore more advantageous to have a board with diverse specializations, as it will help the firm implement enhanced and more transparent reporting strategies (Fernández-Galo et al., 2018). In the context of the NMFs, board expertise is essential for the successful implementation of sustainability programs and equally important for communicating these to stakeholders (Olaniyi & Elumah 2016). In light of the current momentum to increase the quality of sustainability reporting by firms, the part played by board expertise in determining sustainability disclosures assumes even greater significance (Khan et al., 2013).

Board expertise is defined as the number of years of experience possessed by members of the board of directors, and firm age is an important contingent factor in the board expertise and sustainability disclosure relationship. Experience and the observation of the historical performance of the firms make it difficult for the older firms to embrace sustainable reporting since they already have structures in place. Such firms may also have a highly developed corporate culture that may influence the extent to which they are sensitive to new sustainability requirements. On the other hand, it is argued that young firms are more flexible and may be ready to embrace new practices such as sustainability reporting (Autio et al., 2000). Firm age and board expertise can be thought to work in combination to demonstrate how these factors affect the quality and amount of sustainability reporting in NMFs (Wang & Li, 2015).

This study examines the challenges of sustainability disclosure, mainly due to the inadequate board experience of most NMFs and their inability to meet the conventional sustainability quizzing yardsticks. For example, firms that have a large impact on the environment, such as Honeywell,



Better Glass, Vita Foam, PZ Cussons, and Champion Breweries, may face difficulty preparing sustainability reports when the board does not possess adequate knowledge in the area. It not only poses a threat to the firm's image but also draws the firm away from the responsible investors' pool. Unfortunately, the moderating role of firm age in this regard has not received much attention in the literature, including the works by Githaiga and Kosgei (2023) and Shamil et al. (2014), which are based on different geographical areas and time frames. Studies by Musa et al. (2020) do not go up to the recent decade, nor does it examine how board expertise affects sustainability disclosure among NMFs. To fill these gaps, this study will investigate the moderating effect of firm age on the relationship between board expertise and sustainability disclosure of NMFs 2013–2023.

Purpose of the Study

The main purpose of the study was to examine the board attributes on Sustainability disclosure of listed NMFs. Specifically, to:

- i. examine the effect of board expertise on listed manufacturing firms in Nigeria's sustainability disclosure.
- ii. investigate the effect of firm age on sustainability disclosure of listed manufacturing firms in Nigeria.
- iii. assess how the firm age moderate the effect of board expertise on sustainability disclosure of listed manufacturing firms in Nigeria.

Research Questions

- i What is the effect of board expertise on the sustainability disclosure of listed manufacturing firms in Nigeria?
- ii In what way do firm age affect the sustainability disclosure of listed manufacturing firms in Nigeria?
- iii To what extent does firm age moderate the effect of board expertise on sustainability disclosure of listed manufacturing firms in Nigeria?

Research Hypotheses

H0₁: Board expertise has no significant effect on the sustainability disclosure of listed manufacturing firms in Nigeria.

H0₂: Firm age have no significant influence on the sustainability disclosure of listed manufacturing firms in Nigeria.

H0₃: Firm age has no significant moderating effect on the relationship between the board expertise and sustainability disclosure of listed manufacturing firms in Nigeria.

The present study adds to the body of knowledge on corporate governance by examining the relationship between firm age, board expertise, and sustainability disclosure. It will also benefit practitioners, particularly board members and management of manufacturing firm NMFs, by providing insights into how to improve sustainability reporting through strategic governance. Taking the firm's age into account, the research presents insights that can be used to create policies



that can help direct firms toward having better sustainability practices within them. For these reasons, the study is significant.

This research focuses on the moderating role of firm age on the effect of board expertise on NMFs' sustainability disclosure from 2013 to 2023. Sustainability disclosure is the dependent variable, board expertise is the independent variable, and firm age is the moderating variable, focusing on consumer goods firms and industrial goods as the domain and utilizing data from sampled firms' annual reports from 2013 to 2023. This study covers five parts, including an introduction, a literature review, methodology, results and discussion, a conclusion, and recommendations.

Literature Review

The conceptual review of this study would serve as an important foundation, aiming to create ideas and vivid explanations about the variables. Drawing on insights from previous research, this section aims to provide a comprehensive understanding of the key concepts related to sustainability disclosure as an independent variable, board expertise as dependent variables, and firm age as the moderator.

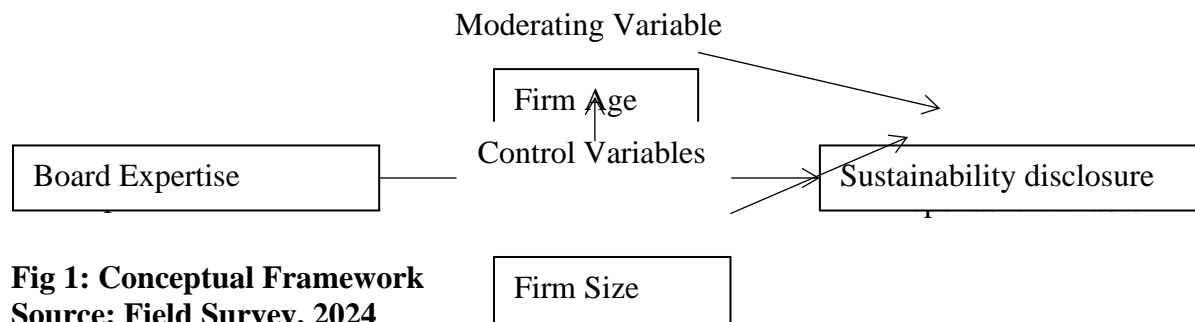


Fig 1: Conceptual Framework
Source: Field Survey, 2024

Brauer and Schmidt (2020) defined sustainability disclosure as management's voluntary communication of social information which has an economic impact within the firms' operations through their annual reports beyond and above any legal reporting regulation as per the IAS or any other similar legal requirement. In light of the above definitions, it could be inferred that disclosure could either be mandatory or voluntary. The nature and extent of the information that has to be provided as mandatorily included in the annual report are described in detail in IAS (Rosellyn & Lusmeida, 2019). In this research, sustainability disclosure refers to the full and accurate revelations of the business's ESG policies and the effects on the stakeholders to show its conformity to the principles of sustainable development.

Board expertise is defined as the proficiency board members possess and utilize to provide directions to the firm and make good decisions (Fernández-Galo et al., 2018). Olaniyi and Elumah (2016) opined that board expertise plays an important role in monitoring and evaluating management, adherence to regulatory requirements, and charting future firms' growth in corporate governance. Board expertise is comprised of diverse areas such as financial and legal skills,



knowledge of industry and its growing discipline, and sustainable management practices. This study defines board expertise as the collective human capital of board members concerning financial knowledge that has a direct bearing on the quality and extent of sustainability disclosures in NMFs.

Firm age entails the number of years that have elapsed since the business was established. It is widely considered one of the significant factors that affect various strategic management decisions of the firm, its governance, and corporate behaviour (Autio et al., 2000). The level of sustainability practices and reporting implementation and the way they are set can depend on how old the firm is and have several essential factors: The first is prior processes and procedures; the second is experience; and the third is the firm's strong corporate culture (Wang & Li, 2015). Younger firms, on the other hand, may be flexible and innovative, but they do not have well-defined structures and policies like older firms do (Wang & Li, 2015). In this study, firm age is defined as the number of years from the establishment of the firm up to the study year, 2023, of this research, which moderates the relationship between board expertise and sustainability disclosure.

Pfeffer and Salancik (1978) found the Resource Dependence Theory (RDT), which is relevant to this research. RDT assumes that organizations need organizational resources for their survival, and this need affects their actions, including their approach to corporate governance. Therefore, the theory focuses on the need to leverage the expertise of boards in ensuring that the dependencies needed to acquire important resources such as information, knowledge, and legitimacy that are vital for the attainment of organizational objectives are effectively managed.

RDT has especially been applied in corporate governance studies to understand the function of the board in delivering resources that improve firm performance. For example, Hillman et al. (2020) used RDT to explain how board composition determines organizational performance by utilizing key organizational assets. In the same way, Michelon and Parbonetti (2012) apply RDT to explain how board expertise influences sustainability disclosures since the presence of expert directors' aids organizations in responding to the needs of stakeholders concerning the disclosure of sustainable information. RDT is used to underpin this study because it brings out the importance of board experience in the determination of disclosure on sustainability.

Githaiga and Kosgei (2023) investigated the effect of board characteristics on the sustainability reporting of 79 listed firms in East Africa from 2011 to 2020. The study utilized fixed- and random-effects analysis and generalized methods of measurement. The study proved that board expertise positively and significantly affects sustainability reporting. Nevertheless, the fact that the study only focused on East Africa, the period covered, and the failure to consider the age of firms as a potential moderating factor leave gaps in how these dynamics play out in NMFs. This study seeks to fill the gaps by analyzing the moderating influence of firm age on the relationship between board expertise and sustainability disclosure in NMFs from 2013 to 2023.



A cross-sectional analysis of 114 Saudi firms was employed to investigate the Maswadi and Amran (2023) hypothesis of the correlation between board capital attributes and CSRD quality. Their studies show that director experience is a positive indication of CSRD quality. The study provides valuable insight but only looks at Saudi firms, with the moderating role of the CEO leaving gaps in the NMFS context. This research seeks to fill these gaps by using the concept of firm age to moderate the relationship between board expertise and sustainability disclosure in the NMFs between 2013 and 2023.

In the study of Erin et al. (2022), 120 firms listed on the Nigeria Stock Exchange were examined to ascertain the relationship between corporate governance and sustainability reporting quality. By applying ordered logistic regression, the study found that board expertise positively and strongly affects sustainability reporting quality. Furthermore, the firm's age is not considered to see whether it affects this relationship. To fill this gap, this study examines firm age as a moderator on the relationship between board expertise and sustainability disclosure in the NMFs from 2013 to 2023. Dienes and Velte (2016) utilized multiple regression analysis to investigate the effect of supervisory board composition, especially expertise, on the CSR of 53 German firms in the two-tier system. The study found that board expertise has no effect, contrary to research focused on one-tier systems. While this study provides the qualitative features of the German system and does not consider a moderating role that may not be directly applicable in the NMFs, this study mitigates this shortcoming by establishing how firm age interacts with board expertise in depicting sustainability disclosure among the NMFs from 2013 to 2023.

Shamil et al. (2014) examined the relationship between board attributes and SR in 148 firms in Sri Lanka through cross-sectional hierarchical binary logistic regression analysis by using a purposive sample with stratified random sampling. The study found that younger firms are following a trend to embrace sustainable reporting, more so due to higher acceptance of innovation compared to older firms. Nonetheless, the study obtained data from Sri Lanka and its specific economic situation, which impairs the possibility of extending the results to Nigeria. However, this study helps to meet this research gap by studying the moderating effect of firm age on the relationship between board expertise and sustainability disclosure in NMFs, which are in a different economy. Pareek et al. (2019) compared the firm characteristics' effects on the disclosure of environmental performance disclosure, which included the age of the enterprises, employing 38 of the non-financial firms listed on the NSE from 2013 to 2017, using panel data analysis. The study found that firm age positively and significantly affects environmental disclosure practices, meaning that firms with a longer operating history disclose their environmental performance. However, this study covers 2013–2017, and testing on Indian firms leaves gaps in the NMF context that covers 2013–2023. This study fills the above research gaps by exploring how firm age moderates the relationship between board expertise and sustainability disclosure in NMFs from 2013 to 2023, which differs from the Western cultural and regulatory context.

Musa et al. (2019) analyzed the impact of the board of directors' diversity on sustainability reporting by the industrial goods firms listed on the Nigerian stock exchange between 2014 and



2018. The study utilized a sustainability disclosure index based on the GRI guidelines and employed panel least squares regression, establishing that board age diversity was a negative determinant of sustainability reports. However, nationality, diversity, and education were found to be insignificant. The fact that this study targeted the diversity of the board of directors as opposed to experience, did not consider a moderator, and covered 2014–2018 leaves research gaps in generalizing the findings to NMFs. This study addresses these gaps by exploring the moderating effect of firm age on the relationship between board expertise and sustainability disclosure among NMFs from 2013 to 2023.

Methodology

This study used an ex-post facto research design, which is appropriate because it allows for the investigation of relationships between board expertise and sustainability disclosure after the events have already occurred, minimizing researcher interference and ensuring natural observation of the variables. The population for the study consists of 34 consumer goods and industrial goods firms as shown in Appendix A. sample size of 16 firms was selected using purposive sampling, justified by the need to focus on firms that have consistently disclosed sustainability reports from 2013 to 2023 as shown in Appendix B. This study utilized the annual reports of these firms to gather necessary data, employs multiple regression techniques, and analyses the data through STATA software 13. This study adapts the model specification of Umukoro et al. (2019) as:

$$SRD_{it} = \beta_0 + \beta_1 Ede_{it} + \beta_2 Nede_{it} + \beta_3 EDU_{it} + \beta_4 \sum others_{it}$$

Where: SDR = Sustainability reporting index, Ede = Executive Directors' Expertise, Nede = Non-executive Directors' Expertise, EDU = Directors' Education Level, Other: BM = Board Magnitude, MIN = Board Independence, Size = Firm size, β_0 = intercepts

On the basis of proxies for the different variables under study, the above equations have been modified as follows:

$$SD_{it} = \beta_0 + \beta_1 BE_{it} + \beta_2 FA_{it} + \beta_3 (BE*FA)_{it} + \beta_4 FS_{it} + \epsilon_{it}$$

Where: SD = Sustainability disclosure, BE = Board expertise, FA = Firm age, FS = firm size, β_0 = intercepts, ϵ = error terms, $\beta_1 - \beta_4$ = Coefficient, it = firm at time

The variables definitions and measurement of this study that include dependent Variable (sustainability disclosure), independent variable (Board expertise), moderator (Firm age), and control variables (firm size) are presented in Table 1.



Table 1
Variables Definition and Measurement

Variables	Definition	Measurement	Sources
Dependent Variable Sustainability Disclosure (SD)	Sustainability disclosure is the comprehensive and transparent reporting of a company's ESG practices.	Sustainability Disclosure 1, otherwise 0	Githaiga and Kosgei (2023)
Independent Variable Board Expertise (BE)	Board size is the proportion of members of the board with financial knowledge.	Number of directors with financial Knowledge to board size	Maswadi and Amran (2023)
Moderating Variable Firm Age (FA)	Fage age is the number of years to date the firm has been incorporated.	Number of years since incorporation	Shamil et al. (2014)
Control Variable Firm Size	Firm size is the firms' total assets	Natural log of total assets	Umukoro et al. (2019)

Source: Author's compilation, 2024

Results and Discussion

This presents the results and discussion of the data of this paper analyzed through STATA 13 software.

Table 2 : Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Sd	176	.602	.491	0	1
Be	176	.449	.193	.1	.92
Fa	176	53.25	16.913	21	100
Fs	176	10.718	.773	9.26	12.49

Source: STATA 13, 2024

Table 2 indicates that sustainability disclosures range from 0 to 1 and have a mean of 0.602 with a standard deviation of 0.491, which implies that the variable has low variation. The proportion of board expertise ranges from 0.1 to .92, with a mean of 0.449 and a standard deviation of 0.193, signifies that there is a little variation in board expertise. In addition, firm age range from 21 to 100, with a mean of 53.25 and a standard deviation of 16.913, implying higher variation in firm age within the period under review.

Table 3: Pairwise correlations

Variables	(1)	(2)	(3)	(4)
(1) sd	1.000			
(2) be	-0.080 (0.289)	1.000		
(3) fa	0.159* (0.035)	-0.093 (0.218)	1.000	
(4) fs	0.275* (0.000)	-0.129 (0.087)	-0.077 (0.308)	1.000

*** p<0.01, ** p<0.05, * p<0.1

Source: STATA 13, 2024



Table 3 above reveals no correlation between board expertise (be) and sustainability disclosure with a coefficient of -0.080 and p-value of 0.289. Firm age has a significant correlation with sustainability disclosure, with a coefficient of 0.159 and a p-value of 0.035. There is no correlation between the dependent and moderating variables.

Table 4
Robustness Test

	VIF	1/VIF
Be	1.028	.973
Fs	1.025	.975
Fa	1.017	.983
Mean VIF	1.024	.
Hettest	.0061	
Hausman Specification Test	0.000	

Source: STATA 13, 2024

Table 4 indicates no presence of multicollinearity, as the VIF mean of 1.024 is less than the benchmark of 10 and the inverse of it is less than 1. In addition, a hettest p-value of 0.0061 reveals the presence of heteroscedasticity and is resolved through robust regression. Additionally, a Hausman specification test with a p-value of 0.0061 indicates that fixed effect is more appropriate to the panel data, but as the panel data exhibits heteroscedasticity, panel correction standard error (PCSE) is more suitable to adjust the standard errors for entity-specific variances to ensure more reliable estimates.

Table 5
Linear regression, Correlated Panels Corrected Standard Errors (PCSEs)

Sd	Coef.	St.Err.	t-value	p-value	Sig
Be	-2.0041	.6353	-3.15	0.002	***
Fa	-.0065	.0033	-1.98	0.048	**
Be_fa	.0325	.0091	3.57	0.000	***
Fs	.1574	.0334	4.71	0.000	***
Constant	-0.6034	.5128	-1.18	0.239	
R-squared		0.1399	Number of obs		176
F-test		50.55	Prob > F		0.000

*** p<.01, ** p<.05, * p<.1

Source: STATA 13, 2024

Table 5 above indicates an R-square of 0.1399, implying that the independent, moderator, and control variables explain 13.99% of the variation in the dependent variable. However, with F-statistics of 50.55 significant at 1%, it signifies that the entire model is fit, well combined, and used.

Board expertise (be) and sustainability disclosure (sd) have a negative and statistically significant at the 0.01 level (p = 0.002), with a standard error of 0.6335 and a coefficient of -2.0041. The coefficient indicates that firms with more board expertise, when used directly, have a negative



effect on sustainability disclosure. This study, therefore, rejects the first hypothesis that board expertise has no significant effect on the sustainability disclosure of NMFs.

The firm age (fa) has a standard error of 0.0033 and a coefficient of -0.0065 and a p-value of 0.048. This implies that firm age has a negative and statistically significant effect on sustainability disclosure. This study, therefore, rejects hypothesis two that firm age has no significant influence on NMFS sustainability disclosure.

The coefficient for the interaction term be_fa is 0.0325 with a standard error of 0.0091 at the 0.01 level of significance, and a p-value of 0.000 shows a positive and statistically significant result. This suggests that firm age has a moderating effect on the connection between board expertise and sustainability disclosure. In particular, the positive coefficient indicates that greater firm age attenuates the beneficial effect of board expertise on sustainability. This study, therefore, rejects the third hypothesis that firm age has no significant moderating effect on the relationship NMFs.

Conclusion

In conclusion, when board expertise is used directly, it has a negative effect on sustainability disclosure, and firm age also has a similar effect. However, the interaction between board expertise and firm age is positive and significant, suggesting that firm age has a mediating effect and strengthens the positive effect of board expertise on sustainability disclosure.

Recommendations

- i. This study recommends that it is better to maximize the use of expertise on boards to enhance the practices of sustainability reporting,
- ii. Board expertise should be maximized especially in older firms where the benefit of experience can be of added value in enhancing structures of good governance.
- iii. Furthermore, older firms should try to increase the degrees of sustainability disclosure since such firms have more experience and industry tenure compared to young firms.

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