**TSU-International Journal of Accounting and Finance (TSUIJAF)**
*e-ISSN: 28811-2709, p-ISSN: 28811-2695. Volume 1, Issue 2 (Jan. 2022).*
*Official Publication of the Department of Accounting,*
*Faculty of Management Sciences, Taraba State University, Jalingo |*
*Managed by K-Injo (A product of Kobia Data Limited)*

# AUDIT COMMITTEE CHARACTERISTICS AND ENVIRONMENTAL DISCLOSURE OF NIGERIAN LISTED FIRMS

Rabiu Saminu Jibril[1], Mustapha Usman[2] & Isah Umar Kibiya[3]

[1]Kano State Polytechnic, Kano, Nigeria. rabiu.saminujibril@gmail.com
[2]Alqalam University Katsina, Nigeria. muumar84@gmail.com
[3]Yusuf Maitama Sule University Kano, Nigeria. isahkibia@gmail.com

***Abstract***

*The research examines the effect of audit committee characteristics on environmental disclosure in annual reports of quoted industrial and natural resources for the period of 4 years (2015 – 2018). The study uses a sample of 16 listed firms and content analysis technique was employed to compute environmental disclosure indexes using GRI, while regression analysis was also conducted to test the relationship between research variables. The study revealed that audit committee size, audit committee diversity and audit committee meeting were significantly related to environmental disclosure. Also, the study found that other variables were insignificantly related to environmental disclosure. Thus, the country should endeavour to design appropriate mandatory policies which will encourage and compel all listed firms to report their environmental information.*

**Keywords:** Audit committee, disclosure and environmental

## 1.0 Introduction

The rising concern for environmental blame among firms is due to the high negative effects of a company's activities on society. The inaction of corporate organizations to reduce the negative effects of their operations on the environment has resulted in annoying environmental calamities around the globe. Abandonment of this responsibility is the cause of conflict in the Niger Delta region of Nigeria (Okpala & Iredele, 2019). The escalating epidemic of this crisis has therefore made it progressively more difficult for firms to ignore the problem of the environment in which they operate. Accordingly, it is expected that firms disclose in their annual reports, its intervention role in mitigating the negative impact of their activities on the environment in which it operates,(Alnabsha, Abdou, Ntim & Elamer, 2018; Samaha, Khlif and Hussainey, 2015a)

Environmental reporting practices are means of communicating to the stakeholders about the effect of the firm's actions on the environment (Alnabsha, Abdou, Ntim & Elamer, 2018). Therefore, this disclosure the impact of company activities on the natural environment such as waste management, recycling, carbon management, emission, pollution, wetland and wildlife conservation among others (Armstrong, Core, & Guay, 2014; Garcia-Torea, Fernandez-Feijoo, & de la Cuesta-González, 2017; Osazuwa, Nasakhare Peter, Ahmad, 2018). Environmental reporting is largely non-existent and unregulated in Nigeria, which means it is not clear what drives firms that dare to disclose their environmental information voluntarily, (Samaha, Khlif & Hussainey, 2015).

The situation of the world's environment and its effects of mankind on the ecosystem of the world have led to increased community concern and inspection of operations and performances of organizations. Though some developed countries have established mandatory disclosure requirements, consequently most developing countries still rely heavily on voluntary initiatives of the reporting entities (Hassan & Kouhy, 2013). Presently is little literature as regards the issue of environmental reporting disclosures in Nigeria. The majority of accessible studies assessed the effect of corporate governance on voluntary disclosure. However, the current study differs from previous studies as it concentrates on the effect of the audit committees on environmental disclosure. This is because it is the responsibility of the audit committee to scrutinize the financial statement and ensure compliance with rules that govern the preparation of the financial statement. Similarly, it is expected that the committee will ensure that financial statements disclose relevant environmental information to cater for the need of relevant users. To this end, this research extends the body of existing literature by assessing the impact of audit committee characteristics (size, independence, financial expertise, meeting and diversity) on environmental disclosure by Nigerian listed industrial and natural resources companies.

## 2.0 Literature Review and Hypotheses development

The Audit Committee is the supervisory committee of the main board of directors. The board of directors have delegated duty for the company's environmental and another reporting process to the audit committee (Bédard & Gendron, 2010; Doukakis, 2014; Samaha, Dahawy, Hussainey & Stapleton, 2012). Therefore, the committee is considered to be monitoring means that reduces information asymmetry (Akhtaruddin & Haron, 2010; Barako, 2007), and accordingly eliminates agency costs (Bédard & Gendron, 2010). It also indicates that the Audit Committee is considered a way to check and improve the environmental disclosure process, together with other disclosure (Akhtaruddin & Haron, 2010; Barako, 2007).

Environmental Disclosure (ED) is an important part of the strategy to communicate to the stakeholders and is fundamental in the greening of corporate accounting reports. Cho and Patten (2013), affirmed that the Nigerian situation concerning environmental disclosure is troubling because there is very little regulation.

The earth is overwhelmed by environmental harms that diminish natural resources and strain livelihoods, many of which are exacerbated by poor industrial practices. Given this, it is now clear that the companies need to disclose all the efforts they make to conserve the environment and the supports provided to the immediate community to cushion the effect of their activities on their environment.

The literature of the audit committee indicates that the effectiveness of the audit committee depends primarily on the characteristics of the audit committee (Akhtaruddin & Haron, 2010; Omran & Hoque, 2010; Persons, 2009). Consequently, the right mixture of skills and experience is vital to support the ability of the audit committee to perform its functions efficiently. However, hypotheses will be developed to examine the effect of Audit Committee characteristics (size, independence, meetings, expertise and gender diversity) on environmental disclosure.

**2.1 Audit committee independence**

Based on agency presumption, Fama and Jensen (1983), assert that the successful monitoring of management's actions is probable to be influenced by the existence of independent directors. This is because the independent directors on the audit committee have no economic or personal connection with the management and so they are expected to work independently and impartially from management power (Bédard & Gendron, 2010). Thus, independent directors on the audit committee have more chances to control and decrease management's opportunities to refuse to give information for their benefit (Allegrini & Greco 2013). Therefore, an audit committee with independent directors will ensure the quality and transparency of the financial reporting process, and which in turn reduces information asymmetry (Allegrini & Greco, 2013; Haniffa and Cooke, 2002; Mohd Saleh, Mohd Iskandar & Mohid Rahmat, 2007).

Prior research also documented evidence of the significance of audit committee independence. Kelton and Yang (2008), found that the likelihood of an independent audit committee related to the incidence of internal control issues was significantly reduced. Furthermore, Sengupta and Zhang (2015), detailed there is a positive correlation between the independence of the audit committee and risk disclosure. The empirical results of the Egyptian context are mixed; Samaha, Khlif and Hussainey, (2015b), found that the audit committee had corresponding effects on the general voluntary corporate disclosure. Conversely, Samaha et al., (2012), did not find a noteworthy correlation with the Egyptian corporate governance disclosures. Based on these arguments, the study set the first hypothesis as follows:

**H1: There is a positive relationship between audit committee independence and environmental disclosure.**

**Audit committee Size**

The theory of resource dependence holds that bigger audit committees are willing to invest more resources and power to perform their functions successfully (Allegrini & Greco, 2013). More directors in the audit committee are more likely to provide diverse perspectives, knowledge, experience, and skills to ensure adequate monitoring (Bédard & Gendron, 2010). Thus, more audit committee members possibly will help the committee to discover and resolve impending problems in the corporate reporting process (Alnabsha et al., 2018). This reveals that the size of the audit committee is an essential factor for the audit committee to monitor corporate disclosure practices completely (Persons, 2009). Ho and Shun Wong (2001), affirm that the existence of the audit committee considerably affects the level of disclosure. Also, Cheng & Leung (2014), believe that many directors in the committee can cut the problem of information asymmetry and lead to more disclosures.

Previous studies found a positive correlation between the size of the audit committee and the company's reports (Chan, Liu & Sun, 2013; Inaam and khamoussi, 2016; Rashid, 2016; Scott, 2016). On the other hand, Dowling and Leech, (2007), Eiler, Miranda-Lopez and Tama-Sweet, (2015) These arguments give rise to the second hypothesis as follows:

**H2: There is a positive relationship between audit committee size and environmental disclosure.**

**Audit committee financial expertise**

Members of the audit committee should have satisfactory accounting and financial knowledge to adequately and effectively monitor the reliability of the company's financial reporting process and its disclosure practices (Hidalgo, García-Meca & Martínez, 2011). The committee must have the appropriate financial experience to carry out their duties, attain a sufficient review of financial reports and narrative reports, and sufficiently supervise domestic control and risk management systems (Dhaliwal, Naiker & Navissi, 2010). Financial expertise enables audit committee members to identify and promote issues that raise questions about knowledge management and external audits, thereby improving the quality of financial reporting (Bédard & Gendron, 2010). This, in turn, will increase the transparency of corporate reporting, which will reduce the agency's problems related to information flow. The best practice requires that at least one member of the audit committee has the most recent relevant financial experience.

Based on these arguments, the study set the third hypothesis as follows:

**H3: There is a positive relationship between audit committee expertise and environmental disclosure.**

## 2.2 Audit committee meeting

The rate of meetings of the audit committee is measured by the number of audit committee meetings held during the year. The occurrence of the meetings of the audit committee and its duration vary according to the scope and complexity of the committee's responsibilities (Xie, Davidson III & DaDalt, 2003). The frequency of audit committee meetings was one of the most widely considered, as previous studies used it as a representative of audit committee activities. The number of meetings of the audit committee is an essential factor in the effectiveness of its monitoring (Cai, Hillier, Tian & Wu, 2015). (Anderson, Mansi and Reeb, 2004; Hsu and Wu, 2014) pointed out that the audit committee supervises internal control and provides reliable information to shareholders.

Hsu and Wu, (2014) found that there is a positive correlation between audit committee meetings and firm value. Other authors found that there was no correlation between audit committee meetings and performance, such as Yahya, Abdullah, Hanim and Ebrahim, (2012). Because of this conflict, there is no conclusive evidence. Moreover, Allegrini and Greco, (2013) reported that there is a positive correlation between the normality of audit committee meetings and voluntary disclosure. Based on these arguments, the study set the fourth hypothesis as follows:

**H4: There is a positive relationship between audit committee meetings and environmental disclosure.**

## 2.3 Gender Diversity of Audit Committee

In recent times, many studies on board personality and group dynamics tend to examine the influence of gender on corporate decisions with some of these studies looking at gender diversity of audit committees and its influence on the role of the committee. Gender diversity may be referred to as the mix of males and females on the board of directors and the audit committee in specificity. Appuhami and Tashakor, (2016) used gender diversity as a proxy in examining audit committee's influence on the level of CSR disclosure by Australian firms by arguing that gender diversity brings on board important human resources and varied opinions that help to improve the work of audit committees and the quality of decisions.

Similarly, Black and Kim, (2012) contend that gender diversity appears to be a very important human characteristic that improves the effectiveness and enhances the decisions of audit committees due to the diversity of opinions from male and female members.

Gul, Srinidhi, and Nug, (2011) argue that gender diversity improves the level of discussion and debate on sensitive and emotional issues which may not gain much attention from an all-male audit committee. Moreover, female directors on audit committees are found to be very open and freely ask a lot of questions to seek better clarifications when they are not convinced with the answers provided. Furthermore, (Chung et al., 2016), posit that female directors are very stable, calm and less aggressive in their decisions as compared to their male counterparts. This helps to enrich the discussions of the committee thereby improving its effectiveness.

However, Campbell, Hansen, Simon and Smith, (2011), reported an insignificant relationship between the gender of the audit committees and voluntary disclosure. Based on these findings, the study hypothesizes that:

**H5: There is a relationship between gender diversity of audit committee and environmental disclosure**

## 3.1 Research methodology

This paper assessed the relationship between audit committee characteristics and environmental disclosure practice in Nigeria. The population of the study consists of all seventeen (17) industrial and natural resources companies listed on Nigerian Stock Exchange. One company was eliminated from the population because of the absence of data for the complete study period. The study used secondary data collected from the annual reports and accounts of the sampled companies for the period of 4 years (2015-2018). The choice of the sectors was based on the environmental issues associated with the sectors. Second, 2015 to 2018 are the period in which the financial reporting environment has witnessed important regulatory improvement concerning environmental disclosure.

The study used content analyses to capture the level of environmental disclosure of Nigerian listed industrial and natural resources firms using Global Reporting Initiative (GRI) guidelines. The content analysis technique was adopted because it's one of the most logical and objective techniques engaged in prior studies involving corporate disclosures issues (Adams, 2018; Deegan & Gordon, 1996; Kalu, Buang, & Aliagha, 2016; Williams, 1999; Wiseman, 1982). The study used the un-weighted disclosure method to capture the extent of environmental disclosure among the Nigerian firms (Tsalavoutas & Dionysiou, 2014). Under the proposed approach, 0 points is given to non-compliance and 1 is given when the company disclose an item of environmental disclosure.

Descriptive statistics were performed basically to summarize the data into a manageable form and to test the extent of compliance with environmental disclosure by the firms. The research variables were measured in line with previous studies as follow:

Table 1.

| Variable | Acrimony | Measurement | Source |
|---|---|---|---|
| Environmental Disclosure Score | ED | Number of items Disclose | (Armstrong et al., 2014; Deegan & Gordon, 1996; Garcia-Torea et al., 2017; Osazuwa, Nasakhare Peter, Ahmad, 2018) |
| Audit Committee Size | ASIZE | Total number of committee members | Chan et al., 2013; Henry, 2010 |
| Audit committee composition (Independent) | ACOMP | The proportion of non-executive directors in the committee | Allegrini and Greco, 2013; |
| Audit committee Diversity | ADIV | Number of female in the committee | Chung et al., 2016 Black and Kim, (2012) |
| Audit committee expertise | AEXP | Number members with finance-related postgraduate degrees or relevant professional body membership | Akhtaruddin and Haron, 2010; Li, Mangena and Pike, 2012 |
| Audit committee meeting | AMEET | Total Number of meetings during the reporting period | Anderson, Mansi and Reeb, 2004; Hsu and Wu, 2014 |
| Liquidity | LIQ | Current assets divided by current liabilities | (Bédard and Gendron, 2010) |
| Profitability | PROF | Profit after taxation divided by total assets | Black and Kim, (2012) |
| Firm size | FSIZE | Natural logarithm of total assets | Tsalavoutas and Dionysiou, 2014 |

A multiple regression was applied to test the hypothesis based on the following model:
EDSit= α + β1ASIZEit + β2ACOMPit + β3ADIVit + β4AEXPit + β5AMEETit+ β6LIQ + β7PROFit + β8FSIZEit+ Ɛit
Where:
α = Constant
β0 = Intercept estimates
EDS= Environmental Disclosure Score
ASIZE = Audit Committee Size (Total number of committee members)
ACOMP = Audit Committee Composition (Proportion of non-executive directors in the committee)
ADIV = Audit Committee Diversity (Number of females in the committee)
AEXP = Audit Committee Expertise (Number members with finance-related postgraduate degree or relevant professional body membership)

AMEET = Audit Committee Meetings (Total Number of meetings during the reporting period)
LIQ = Liquidity (Current assets divided by current liabilities)
PROF = Profitability proxy by ROA (Profit after taxation divided by total assets)
FSIZE = Firm Size (Natural logarithm of total assets)

## 4.1 Result and discussion

### 4.1.1 Descriptive statistics

The descriptive statistics of environmental disclosure and audit committee characteristics of the sampled listed firms were presented in Table 2 as follows.

**Table 2. Descriptive statistics**

| | Mean | Median | Maximum | Minimum | Std Dev | Kurtosis | Skewness |
|---|---|---|---|---|---|---|---|
| EDS | 0.114 | 0 | 0.83 | 0 | 0.20 | 7.70 | 2.26 |
| Asize | 5.172 | 6 | 6 | 4 | 0.95 | 1.21 | -0.35 |
| Acomp | 0.487 | 0.5 | 0.75 | 0.33 | 0.07 | 8.81 | 0.72 |
| Adiv | 0.127 | 0.167 | 0.333 | 0 | 0.12 | 1.59 | 0.22 |
| Aexp | 0.313 | 0 | 1 | 0 | 0.47 | 1.65 | 0.81 |
| Ameet | 3.844 | 4 | 7 | 2 | 0.86 | 5.45 | 0.91 |
| Liquidity | 4.797 | 1 | 142 | 0 | 18.45 | 49.53 | 6.69 |
| Prof | 0.117 | 0.07 | 1.08 | -0.78 | 0.30 | 6.08 | 0.91 |
| Size | 15.339 | 14.695 | 20.24 | 12.36 | 2.21 | 3.17 | 1.04 |

The descriptive information of the dependent, independent as well as control variables used in the regression models was presented in Table 2. The results show that the standard deviation of total environmental disclosure by the listed firms for the period under study was 20% with the maximum environmental disclosure score being 83%. Also, the environmental issues disclosed by listed firms ranged 11.4% (mean = 0.114) with medium and minimum at 0%.

In analyzing the audit committee characteristics, the study found that audit committees' size has a maximum of 6 members and a minimum of 4. The mean value of 5 members suggests that the majority of listed firms in Nigeria have more than 5 members composing their audit committee's size. This is close to the statutory requirement of CAMA (2004), section 359(4), that the size of the Audit Committee comprises three non-executive directors and three shareholders' representatives.

On the other hand, the result shows that on average 48.7% of the membership of the audit composition were non-executive directors (independent directors), therefore, to ensure the independence and effectiveness of audit committees, they should be composed mainly of non-executive directors who cannot be easily influenced by management. With regards to gender diversity, it was found that on average, audit committees had 12.7% female representation with some committees having no female representation at all that is 0% as a minimum. It was revealed that on average, audit committees of listed "firms have 31.3% of their members have some level of financial expertise.

**TSU-International Journal of Accounting and Finance (TSUIJAF)**
*e-ISSN: 28811-2709, p-ISSN: 28811-2695. Volume 1, Issue 2 (Jan. 2022).*
*Official Publication of the Department of Accounting,*
*Faculty of Management Sciences, Taraba State University, Jalingo |*
*Managed by K-Injo (A product of Kobia Data Limited)*

The result shows that on average audit committees of listed firms meet 4 or more times within a year with the minimum number of meetings being 2 and the maximum being 7 times.

### 4.1.2 Correlation analysis

The results of the correlation analysis among the research variables were presented in Table 3, as follows:

Table 3. Correlation Matrix

| | EDS | Assize | Acomp | Adiv | Aexp | Ameet | liquid~y | Prof | size |
|---|---|---|---|---|---|---|---|---|---|
| EDS | 1.0000 | | | | | | | | |
| Assize | 0.3834 | 1.0000 | | | | | | | |
| Acomp | 0.1144 | -0.2861 | 1.0000 | | | | | | |
| Adiv | -0.1820 | 0.1152 | -0.2907 | 1.0000 | | | | | |
| Aexp | -0.1427 | 0.0558 | 0.0786 | 0.3418 | 1.0000 | | | | |
| Ameet | 0.2104 | 0.0334 | 0.0764 | 0.2291 | 0.2820 | 1.0000 | | | |
| Liquidity | 0.0262 | 0.1602 | -0.0683 | 0.1451 | -0.1325 | -0.0552 | 1.0000 | | |
| Prof | 0.1685 | -0.0033 | 0.1527 | -0.0402 | -0.1055 | -0.0986 | 0.3608 | 1.0000 | |
| Size | 0.0255 | 0.0673 | 0.1504 | 0.0821 | -0.2743 | -0.0121 | -0.0178 | 0.0399 | 1.0000 |

The correlation coefficients between dependent and independent variables as presented in Table 3 show a positive relationship except gender diversity and financial expertise of audit committees which show low and negative correlations. Also, the size of the audit committee showed a moderate positive correlation with environmental disclosure. This implies that the larger the size of the audit committee the higher the level of environmental disclosure. Moreover, the correlations among the independent variables were found to be low with positive and negative associations. This suggests the absence of a multicollinearity problem among the independent variables.

**Regression results of the audit committee on environmental disclosure**

The regression results for the relationship between audit committee on environmental disclosure.

Characteristics, as estimated by the model, were presented in Table 4 as follows:

Table 4. Regression Results

| | Coef. | Std. Err. | Z-Value | P-Value |
|---|---|---|---|---|
| Asize | 0.104 | 0.024 | 4.34 | 0.000 |
| Acomp | 0.451 | 0.356 | 1.27 | 0.211 |
| Adiv | -0.102 | 0.052 | -1.96 | 0.055 |
| Aexp | -0.084 | 0.055 | -1.53 | 0.131 |
| Ameet | 0.075 | 0.027 | 2.81 | 0.007 |

| | | | | |
|---|---|---|---|---|
| Liquidity | -0.001 | 0.001 | -0.61 | 0.543 |
| Prof | 0.116 | 0.076 | 1.52 | 0.134 |
| Size | -0.005 | 0.011 | -0.48 | 0.635 |
| _cons | -0.776 | 0.259 | -3.00 | 0.004 |
| R-squared | 0.381 | | | |
| Wald chi2(8) | 4.240 | | | |
| Prob > F | 0.001 | | | |
| Number of obs | 64 | | | |

The regression results as presented in Table 4 show an R-square value of 0.381 which implied that 38.1% of the variation in the environmental disclosure by listed firms can be explained by the independent variables in the regression model. The results show a significant relationship between the size of the audit committee and environmental disclosure. This means that the large size of the audit committee influences the volume of environmental disclosure by a firm. Hence, the hypothesis that there is a relationship between the size of the audit committee and the environmental disclosure is supported. This is consistent with the findings of Appuhami & Tashakor, (2016), who found a significant positive relationship between audit committee size and voluntary disclosure. Moreover, the finding appears to be in support with the resource dependency theory that suggests that large audit committees should have the ability to commit greater resources and authority to effectively perform their responsibilities towards enhancing financial reporting (Allegrini & Greco, 2013; Bédard & Gendron, 2010).

However, the finding contradicts prior studies by Li, Mangena, and Pike, (2012), Othman, Ishak, Arif, and Aris, (2014) who found no significant relationship between the size of the audit committee and voluntary disclosure

The relationship between audit committee independence and environmental disclosure was is negative and statistically insignificant. This demonstrates that the independence audit committees do not influence the volume of environmental disclosure. Hence, the second hypothesis is rejected. This contradicts the findings of Akhtaruddin and Haron, (2010); Li et al., (2012) who found that the independence of the audit committee is positively associated with improved voluntary disclosure.

The relationship between gender diversity of audit committees and environmental disclosure was found to be statistically significant. This implies that the volume of environmental disclosure improves with a large number of female representations on the committee. Hence, the third hypothesis is accepted. This is consistent with the argument that gender diversity brings on board important human resources and varied opinions that help to improve the work of audit committees as posited by (Appuhami and Tashakor, 2016). Also, the finding is consistent with the assertion of Black, Kim, Jang and Park, (2015), that gender diversity is a very important human characteristic that improves the effectiveness of teams and enhances the decisions of audit committees due to the diversity of opinions from male and female members.

However, the finding is inconsistent with the position of Cohen, Hoitash, Krishnamoorthy and Wright,(2013), who found no significant relationship between gender diversity of audit committees and voluntary disclosure.

The result showed an insignificant relationship between the financial expertise of the audit committees and environmental disclosure. As such, the fourth hypothesis financial expertise of the audit committee influences the level of environmental disclosure is rejected. The finding supports Appuhami and Tashakor, (2016) who found no significant relationship between financial expertise of audit committees and CSR disclosure, corporate voluntary disclosure, and voluntary ethics disclosure respectively. However, the result contradicts some previous findings which reported a positive relationship between financial expertise and voluntary disclosure (Akhtaruddin & Haron, 2010).

There was a significant relationship between the frequency of meetings of audit committees and the environment disclosure. Thus, the study accepted the fifth hypothesis that the frequency of meetings of audit committee influences environmental disclosure. This implies that audit committee activities in terms of meetings do enhance its monitoring role towards greater environmental disclosure. The finding consists with previous studies which reported a strong "relationship between frequency of audit committee meetings and financial" disclosures (Pucheta-Martínez and De Fuentes, (2007) CSR disclosure Appuhami and Tashakor, (2016), Karamanou and Vafeas, (2005) voluntary disclosures Allegrini and Greco, (2013) and intellectual capital disclosure (Grabski, 2012).

## 5.1 Conclusion

The study revealed that despite the increasing demand and regulations for environmental disclosures, the level and volume of environmental disclosure by the selected firms in Nigeria is still low. The study concluded that some audit committee characteristics (audit committee size, audit committee diversity and audit committee meetings) are effective corporate governance mechanisms that can help to disclose more environmental issues to protect the interest of shareholders through the effective monitoring of disclosure practices of firms to reduce information asymmetry and agency cost. Thus, the study emphasizes that even in the absence of mandatory environmental disclosure requirements for listed firms in Nigeria, audit committees with adequate characteristics could help in improving the volume and quality of environmental disclosure by listed firms.

Despite the call for more environmental disclosure by listed firms in recent times, the volume of environmental disclosure by firms in Nigeria appears to be at the infantry stage. Therefore, it is recommended that stakeholders should demand more environmental disclosures from listed firms by mounting enormous pressure on them to disclose more. More so, firms who fail to disclose environmental information should be punished by investors by tagging such firms as high-risk firms, offering low prices for their stocks, and granting them capital at a higher cost. It is believed that when investors adopt such corrective measures against listed firms, they would be compelled to be more environmentally concerned. The country should endeavour to design appropriate mandatory policies which will encourage and compel all listed firms to report their environmental information.

The study appears to be the earliest empirical study that attempts to examine the effect of audit committee characteristics on environmental disclosure in Nigeria, and also one of the few studies in this direction of environmental disclosure literature in general. Hence, the study proves to be very relevant and makes significant contributions to research, practice and policy. By examining the effect of audit committee characteristics on environmental disclosure, the study supports the legitimacy theory which proposes that an audit committee is an effective corporate governance mechanism that influences environmental disclosure thereby reducing information asymmetry. Hence, the study contributes to the debate on the effectiveness of audit committees in enhancing the volume of environmental disclosure by firms. Lastly, the study contributes to the existing literature, thereby assisting future researchers in the area of disclosure studies.

**References**

Adams, A. A. & B. A. A. (2018). Environmental disclosure practices in annual reports of listed manufacturing firms in Nigeria. *Afe Babalola University Ado-Ekiti*, (08033900620).

Akhtaruddin, M., & Haron, H. (2010). Board ownership, audit committees' effectiveness, and corporate voluntary disclosures. *Asian Review of Accounting*, *18*(3), 245–259. https://doi.org/10.1108/13217341011089649

Al-Bassam, W. M., Ntim, C. G., Opong, K. K., & Downs, Y. (2015). Corporate Boards and Ownership Structure as Antecedents of Corporate Governance Disclosure in Saudi Arabian Publicly Listed Corporations. *Business & Society*, *57*(2), 335–377. https://doi.org/10.1177/0007650315610611

Allegrini, M., & Greco, G. (2013). Corporate boards, audit committees and voluntary disclosure: evidence from Italian Listed Companies. *Journal of Management & Governance*, *17*(1), 187–216. https://doi.org/10.1007/s10997-011-9168-3

Alnabsha, A., Abdou, H. A., Ntim, C. G., & Elamer, A. A. (2018). Corporate boards, ownership structures and corporate disclosures: Evidence from a developing country. *Journal of Applied Accounting Research*, *19*(1), 20–41. https://doi.org/10.1108/JAAR-01-2016-0001

Anderson, R. C., Mansi, S. A., & Reeb, D. M. (2004). Board characteristics, accounting report integrity, and the cost of debt. *Journal of Accounting and Economics*, *37*(3), 315–342. https://doi.org/http://dx.doi.org/10.1016/j.jacceco.2004.01.004

Appuhami, R., & Tashakor, S. (2016). *The Impact of Audit Committee Characteristics on CSR Disclosure : An Analysis of Australian Firms*. (October), 1–21. https://doi.org/10.1111/auar.12170

Armstrong, C. S., Core, J. E., & Guay, W. R. (2014). Do independent directors cause improvements in firm transparency? *Journal of Financial Economics*, *113*(3), 383–403. https://doi.org/10.1016/j.jfineco.2014.05.009

ASIC. (2005). ASIC seeks better disclosure for shareholders in related party transactions. Retrieved January 1, 2015, from Australian Securities and

Investments Commission website: http://asic.gov.au/about-asic/media-centre/find-a-media-release/2005-releases/05-63-asic-seeks-better-disclosure-for-shareholders-in-related-party-transactions/

Badolato, P. G., Donelson, D. C., & Ege, M. (2014). Audit committee financial expertise and earnings management: The role of status. *Journal of Accounting and Economics*, *58*(2–3), 208–230. https://doi.org/http://dx.doi.org/10.1016/j.jacceco.2014.08.006

Barako, D. G. (2007). Determinants of voluntary disclosures in Kenyan companies annual reports. *African Journal of Business Management*, *1*(5).

Beasley, M. S., & Salterio, S. E. (2001). The Relationship between Board Characteristics and Voluntary Improvements in Audit Committee Composition and Experience. *Contemporary Accounting Research*, *18*(4), 539–570. https://doi.org/10.1506/RM1J-A0YM-3VMV-TAMV

Bédard, J., & Gendron, Y. (2010). Strengthening the Financial Reporting System: Can Audit Committees Deliver? *International Journal of Auditing*, *14*(2), 174–210. https://doi.org/10.1111/j.1099-1123.2009.00413.x

Black, B., & Kim, W. (2012). The effect of board structure on firm value: A multiple identification strategies approach using Korean data. *Journal of Financial Economics*, *104*(1), 203–226. https://doi.org/10.1016/j.jfineco.2011.08.001

Black, B. S., Kim, W., Jang, H., & Park, K.-S. (2015). How corporate governance affect firm value? Evidence on a self-dealing channel from a natural experiment in Korea. *Journal of Banking & Finance*, *51*, 131–150. https://doi.org/10.1016/j.jbankfin.2014.08.020

Cai, C. X., Hillier, D., Tian, G., & Wu, Q. (2015). Do audit committees reduce the agency costs of ownership structure? *Pacific-Basin Finance Journal*. https://doi.org/10.1016/j.pacfin.2015.01.002

Campbell, J. L., Hansen, J., Simon, C. A., & Smith, J. L. (2011). Are audit committee stock options, non-option equity and compensation mix associated with financial reporting quality. In *Working paper—University of Georgia*.

Chan, A. M. Y., Liu, G., & Sun, J. (2013). Independent audit committee members' board tenure and audit fees. *Accounting and Finance*, *53*(4). https://doi.org/10.1111/j.1467-629X.2012.00490.x

Chariri, A., Januarti, I., & Yuyetta, E. N. A. (2018). Audit Committee Characteristics and Carbon Emission Disclosure. *E3S Web of Conferences*, *73*, 02001. https://doi.org/10.1051/e3sconf/20187302001

Cheng, M.-A., & Leung, N. W. (2014). Ownership Structure, Ongoing Related Party Transactions and Corporate Performance: Evidence from Chinese Listed Firms. *Corporate Ownership and Control*, *11*(2), 446–464.

Cho, C. H., & Patten, D. M. (2013). Green accounting: Reflections from a CSR and environmental disclosure perspective. *Critical Perspectives on Accounting*, *24*(6), 443–447. https://doi.org/10.1016/j.cpa.2013.04.003

Chung, D., Chung, D., Hrazdil, K., Hrazdil, K., Suwanyangyuan, N., & Suwanyangyuan, N. (2016). Disclosure quantity and the efficiency of price discovery: Evidence from the Toronto Stock Exchange. *Review of Accounting and Finance*, *15*(2), 122–143.

Cohen, J. R., Hoitash, U., Krishnamoorthy, G., & Wright, A. M. (2013). The Effect of Audit Committee Industry Expertise on Monitoring the Financial Reporting Process. *The Accounting Review*, *89*(1), 243–273. https://doi.org/10.2308/accr-50585

Contrafatto, M., & Burns, J. (2013). Social and environmental accounting, organisational change and management accounting: A processual view. *Management Accounting Research*, *24*(4), 349–365. https://doi.org/10.1016/j.mar.2013.10.004

Dalton, D., Buchheit, S., Oler, D., & Zhou, M. (2013). Enforcement mechanisms for SEC reporting deadlines. *Research in Accounting Regulation*, *25*(2), 185–195. https://doi.org/10.1016/j.racreg.2013.08.007

Deegan, C., & Gordon, B. (1996). A study of the environmental disclosure practices of Australian corporations. *Accounting and Business Research*, *26*(3), 187–199. https://doi.org/10.1080/00014788.1996.9729510

Deegan, C., Rankin, M., & Tobin, J. (2002). An examination of the corporate social and environmental disclosures of BHP from 1983-1997: A test of legitimacy theory. In *Accounting, Auditing & Accountability Journal* (Vol. 15). https://doi.org/10.1108/09513570210435861

Dhaliwal, D. A. N., Naiker, V. I. C., & Navissi, F. (2010). The association between accruals quality and the characteristics of accounting experts and mix of expertise on audit committees. *Contemporary Accounting Research*, *27*(3), 787–827. https://doi.org/10.1111/j.1911-3846.2010.01027.x

Doukakis, L. C. (2014). The effect of mandatory IFRS adoption on real and accrual-based earnings management activities. *Journal of Accounting and Public Policy*, *33*(6), 551–572. https://doi.org/10.1016/j.jaccpubpol.2014.08.006

Dowling, C., & Leech, S. (2007). Audit support systems and decision aids: Current practice and opportunities for future research. *International Journal of Accounting Information Systems*, *8*(2), 92–116. https://doi.org/10.1016/j.accinf.2007.04.001

Eiler, L. A., Miranda-Lopez, J., & Tama-Sweet, I. (2015). The Impact of Accounting Disclosures and the Regulatory Environment on the Information Content of Earnings Announcements. *The International Journal of Accounting*, (0). https://doi.org/http://dx.doi.org/10.1016/j.intacc.2012.10.008

Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control. *Journal of Law and Economics*, *26*(2), 301-325 CR-Copyright © 1983 The University. https://doi.org/10.2307/725104

Garcia-Torea, N., Fernandez-Feijoo, B., & de la Cuesta-González, M. (2017). The influence of ownership structure on the transparency of CSR reporting: empirical evidence from Spain. *Spanish Journal of Finance and Accounting / Revista Española de Financiación y Contabilidad*, *46*(3), 249–271. https://doi.org/10.1080/02102412.2016.1267451

Grabski, S. (2012). Discussion of "The relationship between internal audit and information security: An exploratory investigation." *International Journal of Accounting Information Systems*, *13*(3), 244–247. https://doi.org/10.1016/j.accinf.2012.06.008

Gul, F. a., Srinidhi, B., & Ng, A. C. (2011). Does board gender diversity improve the informativeness of stock prices? *Journal of Accounting and Economics*, *51*(3), 314–338. https://doi.org/10.1016/j.jacceco.2011.01.005

Haniffa, R. M., & Cooke, T. E. (2002). Culture, corporate governance and disclosure in Malaysian corporations. *Abacus*, *38*(3), 317–349.

Hassan, A., & Kouhy, R. (2013). Gas flaring in Nigeria : Analysis of changes in its consequent carbon emission and reporting. *Accounting Forum*, *37*(2), 124–134. https://doi.org/10.1016/j.accfor.2013.04.004

Henry, D. (2010). Agency costs, ownership structure and corporate governance compliance: A private contracting perspective. *Pacific Basin Finance Journal*, *18*(1), 24–46. https://doi.org/10.1016/j.pacfin.2009.05.004

Hidalgo, R., García-Meca, E., & Martínez, I. (2011). Corporate Governance and Intellectual Capital Disclosure. *Journal of Business Ethics*, *100*(3), 483–495. https://doi.org/10.1007/s10551-010-0692-x

Ho, S. S. M., & Shun Wong, K. (2001). A study of the relationship between corporate governance structures and the extent of voluntary disclosure7. *Journal of International Accounting, Auditing and Taxation*, *10*(2), 139–156. https://doi.org/http://dx.doi.org/10.1016/S1061-9518(01)00041-6

Hsu, H. H., & Wu, C. Y. H. (2014). Board composition, grey directors and corporate failure in the UK. *British Accounting Review*, *46*(3), 215–227. https://doi.org/10.1016/j.bar.2013.12.002

Hutchinson, M., Seamer, M., & Chapple, L. (Ellie). (2015). Institutional Investors, Risk/Performance and Corporate Governance. *The International Journal of Accounting*. https://doi.org/10.1016/j.intacc.2014.12.004

Inaam & khamoussi. (2016). Audit committee effectiveness , audit quality and earnings management : a meta-analysis. *Audit Quality and Earnings Management*, *7*, 179–199. https://doi.org/10.1108/IJLMA-01-2015-0006

Kalu, J. U., Buang, A., & Aliagha, G. U. (2016). *Determinants of Carbon Emission Disclosure and Reduction in Corporate Real Estate Companies in Nigeria Determinants of Carbon Emission Disclosure and Reduction in Corporate Real Estate Companies in Nigeria*. (February 2017).

Kang, H., Cheng, M., & Gray, S. J. (2007). Corporate Governance and Board Composition: diversity and independence of Australian boards. *Corporate*

*Governance: An International Review*, *15*(2), 194–207. https://doi.org/10.1111/j.1467-8683.2007.00554.x

Karamanou, I., & Vafeas, N. (2005). The association between corporate boards, audit committees, and management earnings forecasts: An empirical analysis. *Journal of Accounting Research*, *43*(3), 453–486.

Kelton, A. S., & Yang, Y. (2008). The impact of corporate governance on Internet financial reporting. *Journal of Accounting and Public Policy*, *27*(1), 62–87. https://doi.org/10.1016/j.jaccpubpol.2007.11.001

Kent, P., & Stewart, J. (2008). *Corporate governance and disclosures on the transition to International Financial Reporting Standards*. *48*(February 2007), 649–671.

Khiari, W., Karaa, A., & Omri, A. (2007). *Corporate governance efficiency : an indexing approach using the stochastic frontier analysis*. *7*(2), 148–161. https://doi.org/10.1108/14720700710739796

Li, J., Mangena, M., & Pike, R. (2012). The effect of audit committee characteristics on intellectual capital disclosure. *The British Accounting Review*, *44*(2), 98–110. https://doi.org/http://dx.doi.org/10.1016/j.bar.2012.03.003

Madawaki, A., & Amran, N. (2013). Audit committees: How they affect financial reporting in Nigerian companies. *Journal of Modern Accounting and Auditing*, *9*(8), 1070–1080.

Mohd Saleh, N., Mohd Iskandar, T., & Mohid Rahmat, M. (2007). Audit committee characteristics and earnings management: Evidence from Malaysia. *Asian Review of Accounting*, *15*(2), 147–163.

Muktar, J., Saleh Mohammad, B., Saminu Jibril, U., & Muhammad, S. (2016). The Effect of Corporate Governance on Corporate Social Responsibility Disclosure by Firms in the Nigerian Food Product Industry. *Research Journal of Finance and Accounting Www.Iiste.Org ISSN*, *7*(13), 28–38. Retrieved from www.iiste.org

Okpala, O. P., & Iredele, O. O. (2019). Corporate Social and Environmental Disclosures and Market Value of Listed Firms in Nigeria. *Copernican Journal of Finance & Accounting*, *7*(3), 9. https://doi.org/10.12775/cjfa.2018.013

Omran, M., & Hoque, Z. (2010). Perceived international environmental factors and corporate voluntary disclosure practices : An empirical study. *The British Accounting Review*, *42*(1), 17–35. https://doi.org/10.1016/j.bar.2010.01.001

osazuwa, Nasakhare Peter , Ahmad, A. che & N. che adam. (2018). Environmental disclosure in nigerian quoted companies: the longitudinal study. *IPBJ Vol. 8(2), 19-33 (2016) 19*, *8*(2), 19–33. Retrieved from http://weekly.cnbnews.com/news/article.html?no=124000

Othman, R., Ishak, I. F., Arif, S. M. M., & Aris, N. A. (2014). Influence of Audit Committee Characteristics on Voluntary Ethics Disclosure. *Procedia - Social and Behavioral Sciences*, *145*, 330–342.

https://doi.org/http://dx.doi.org/10.1016/j.sbspro.2014.06.042

Persons, O. S. (2009). Audit committee characteristics and earlier voluntary ethics disclosure among fraud and no-fraud firms. *International Journal of Disclosure and Governance*, *6*(4), 284–297. https://doi.org/10.1057/jdg.2008.29

Plumlee, M., Brown, D., Hayes, R. M., & Marshall, R. S. (2015). J . Account . Public Policy Voluntary environmental disclosure quality and firm value : Further evidence. *JOURNAL OF ACCOUNTING AND PUBLIC POLICY*. https://doi.org/10.1016/j.jaccpubpol.2015.04.004

Pucheta-Martínez, M. C., & De Fuentes, C. (2007). The Impact of Audit Committee Characteristics on the Enhancement of the Quality of Financial Reporting: an empirical study in the Spanish context. *Corporate Governance: An International Review*, *15*(6), 1394–1412. https://doi.org/10.1111/j.1467-8683.2007.00653.x

Rashid, A. (2016). Managerial Ownership and Agency Cost: Evidence from Bangladesh. *Journal of Business Ethics*, *137*(3), 609–621. https://doi.org/10.1007/s10551-015-2570-z

Samaha, K., Dahawy, K., Hussainey, K., & Stapleton, P. (2012). The extent of corporate governance disclosure and its determinants in a developing market: The case of Egypt. *Advances in Accounting*, *28*(1), 168–178. https://doi.org/10.1016/j.adiac.2011.12.001

Samaha, K., Khlif, H., & Hussainey, K. (2015a). The impact of board and audit committee characteristics on voluntary disclosure: A meta-analysis. *Journal of International Accounting, Auditing and Taxation*, *24*, 13–28. https://doi.org/http://dx.doi.org/10.1016/j.intaccaudtax.2014.11.001

Samaha, K., Khlif, H., & Hussainey, K. (2015b). The impact of board and audit committee characteristics on voluntary disclosure: A meta-analysis. *Journal of International Accounting, Auditing and Taxation*, *24*, 13–28. https://doi.org/10.1016/j.intaccaudtax.2014.11.001

Scott, A. H. S. (2016). *Factors influencing corporate social and environmental disclosures : A systematic review Factors influencing corporate social and environmental disclosures : a systematic review Odhiambo Odera * Jeff Gow*. (January). https://doi.org/10.1504/IJBGE.2016.078199

Sengupta, P., & Zhang, S. (2015). Equity-Based Compensation of Outside Directors and Corporate Disclosure Quality. *Contemporary Accounting Research*, *32*(3), 1073–1098. https://doi.org/10.1111/1911-3846.12115

Tsalavoutas, I., & Dionysiou, D. (2014). Value relevance of IFRS mandatory disclosure requirements. *Journal of Applied Accounting Research*, *15*(1), 22–42.

Williams, S. M. (1999). Voluntary environmental and social accounting disclosure practices in the Asia-Pacific region: an international empirical test of political economy theory. *The International Journal of Accounting*, *34*(2), 209–238. https://doi.org/10.1016/S0020-7063(99)00006-0

Wiseman, J. (1982). An evaluation of environmental disclosures made in corporate annual reports. *Accounting, Organizations and Society*, *7*(1), 53–63.

Xie, B., Davidson III, W. N., & DaDalt, P. J. (2003). Earnings management and corporate governance: the role of the board and the audit committee. *Journal of Corporate Finance*, *9*(3), 295–316. https://doi.org/http://dx.doi.org/10.1016/S0929-1199(02)00006-8

Yahya, A. A.-M., Abdullah, K. A.-S., Hanim, F. B. F., & Ebrahim, M. A.-M. (2012). Board of directors , audit committee characteristics and performance of Saudi Arabia Listed Companies. *International Review of Management and Marketing*, *2*(4), 241–251.