



Gusau Journal of Accounting and Finance (GUJAF)

Vol. 5 Issue 2, October, 2024 ISSN: 2756-665X

A Publication of
Department of Accounting and Finance,
Faculty of Management and Social Sciences,
Federal University Gusau, Zamfara State -Nigeria

© Department of Accounting and Finance

Vol. 5 Issue 2
October, 2024
ISSN: 2756-665X

A Publication of
Department of Accounting and Finance,
Faculty of Management and Social Sciences,
Federal University Gusau, Zamfara State -Nigeria

All Rights reserved

Except for academic purposes no part or whole of this publication is allowed to be reproduced, stored in a retrieval system or transmitted in any form or by any means be it mechanical, electrical, photocopying, recording or otherwise, without prior permission of the Copyright owner.

Published and printed by:

Ahmadu Bello University Press Limited, Zaria
Kaduna State, Nigeria.

Tel: 08065949711, 069-879121

e-mail: abupress2013@gmail.com

abupress2020@yahoo.com

Website: www.abupress.com.ng

EDITORIAL BOARD

Editor-in-Chief:

Prof. Shehu Usman Hassan

Department of Accounting, Federal University of Kashere, Gombe State.

Associate Editor:

Dr. Muhammad Mustapha Bagudo

Department of Accounting, Ahmadu Bello University Zaria, Kaduna State.

Managing Editor:

Dr. Umar Farouk Abdulkarim

Department of Accounting and Finance, Federal University Gusau, Zamfara State.

Editorial Board

Prof. Ahmad Modu Kumshe

Department of Accounting, University of Maiduguri, Borno State.

Prof Ugochukwu C. Nzewi

Department of Accounting, Paul University Awka, Anambra State.

Prof Kabir Tahir Hamid

Department of Accounting, Bayero University, Kano, Kano State.

Prof. Ekoja B. Ekoja

Department of Accounting, University of Jos.

Prof. Clifford Ofurum

Department of Accounting, University of PortHarcourt, Rivers State.

Prof. Ahmad Bello Dogarawa

Department of Accounting, Ahmadu Bello University Zaria.

Prof. Yusuf. B. Rahman

Department of Accounting, Lagos State University, Lagos State.

Prof. Suleiman A. S. Aruwa

Department of Accounting, Nasarawa State University, Keffi, Nasarawa State.

Prof. Muhammad Junaidu Kurawa

Department of Accounting, Bayero University Kano, Kano State.

Prof. Muhammad Habibu Sabari

Department of Accounting, Ahmadu Bello University, Zaria.

Prof. Okpanachi Joshua

Department of Accounting and Management, Nigerian Defence Academy, Kaduna.

Prof. Hassan Ibrahim

Department of Accounting, IBB University, Lapai, Niger State.

Prof. Ifeoma Mary Okwo

Department of Accounting, Enugu State University of Science and Technology, Enugu State.

Prof. Aminu Isah

Department of Accounting, Bayero University, Kano, Kano State.

Prof. Ahmadu Bello

Department of Accounting, Ahmadu Bello University, Zaria.

Prof. Musa Yelwa Abubakar

Department of Accounting, Usmanu Danfodiyo University, Sokoto State.

Prof. Salisu Abubakar

Department of Accounting, Ahmadu Bello University Zaria, Kaduna State.

Prof. Isaq Alhaji Samaila

Department of Accounting, Bayero University, Kano State.

Prof. Sunusi Sa'ad Ahmad

Department of Accounting, Federal University Dutse, Jigawa State.

Prof. OnipeAdebenege Yahaya

Department of Accounting, Nigerian Defence Academy, Kaduna State.

Prof. Saidu Adamu

Department of Accounting, Federal University of Kashere, Gombe State.

Prof. Farouk Adeza

School of Business and Entrepreneurship, American University of Nigeria, Yola.

Prof. Fatima Alfa

Department of Accounting, University of Maiduguri, Borno State.

Dr. Nasiru A. Ka'oje

Department of Accounting, Usmanu Danfodiyo University Sokoto State.

Dr. Aminu Abdullahi

Department of Accounting, Usmanu Danfodiyo University Sokoto, State.

Dr. Nasiru Yunusa

Department of Accounting, Ahmadu Bello University Zaria.

Dr. Aisha Nuhu Muhammad

Department of Accounting, Ahmadu Bello University Zaria.

Dr. Lawal Muhammad

Department of Accounting, Ahmadu Bello University Zaria.

Dr. Bashir Umar Farouk

Department of Economics, Federal University Gusau, Zamfara State.

Dr Emmanuel Omokhuale

Department of Mathematics, Federal University Gusau, Zamfara. State

ADVISORY BOARD MEMBERS

Prof. Kabiru Isah Dandago, Bayero University Kano, Kano State.

Prof A M Bashir, Usmanu Danfodiyo University Sokoto, Sokoto State.

Prof. Muhammad Tanko, Kaduna State University, Kaduna.

Prof. Bayero A M Sabir, Usmanu Danfodiyo University Sokoto, Sokoto State.

Prof. Aliyu Sulaiman Kantudu, Bayero University Kano, Kano State.

Editorial Secretary

Yazid Kabir Ibrahim

Department of Accounting and Finance, Federal University Gusau, Zamfara State.

CALL FOR PAPERS

The editorial board of Gusau Journal of Accounting and Finance (GUJAF) is hereby inviting authors to submit their unpublished manuscript for publication. The journal is published in two issues of April and October annually. GUJAF is a double-blind peer reviewed journal published by the Department of Accounting and Finance, Faculty of Management and Social Sciences, Federal University Gusau, Zamfara State Nigeria. The Journal accepts papers in all areas of Accounting and Finance for publication which include: Accounting Standards, Accounting Information System, Financial Reporting, Earnings Management, , Auditing and Investigation, Auditing and Standards, Public Sector Accounting and Auditing, Taxation and Revenue Administration, Corporate Governance Issues, Corporate Social Responsibility, Sustainability and Environmental Reporting Issue, Information and Communication Technology Issues, Bankruptcy Prediction, Corporate Finance, Personal Finance, Merger and Acquisitions, Capital Structure, Working Capital Management, Enterprises Risk Management, Entrepreneurship, International Business Accounting and Finance, Banking Crises, Bank's Profitability, Risk and Insurance Issue, Islamic Finance, Conventional and Islamic Banks and so forth.

GUIDELINES FOR SUBMISSION AND MANUSCRIPT FORMAT

The submission language is English and must be a well-researched original manuscript that has not previously been submitted elsewhere for publication. The paper should not exceed more than 15 pages on A4 type paper in MS-word format, 1.5-line spacing, 12 Font size in Times new roman. Manuscript should be tested for plagiarism before submission, as the maximum similarity index acceptable by GUJAF is 25 percent. Furthermore, the length of a complete article should not exceed 5000 words including an abstract of not more than 250 words with a minimum of four key words immediately after the abstract. All references including in text citation and reference list, tables and figures should be in line with APA 7th Edition publication manual. Finally, manuscript should be send to our email address elfarouk105@gmail.com and a copy to our website on journals.gujaf.com.ng

PUBLICATION PROCEDURE

After receiving a manuscript that is within the similarity index threshold, a confirmation email will be sent together with a request to pay a review proceeding fee. At this point, the editorial board will take a decision on accepting, rejecting or making a resubmission of the manuscript based on the outcome of the double-blind peer review. Those authors whose manuscript were accepted for publication will be asked to pay a publication fee, after effecting all suggested corrections and changes made on the manuscript. All corrected papers returned within the specified time frame will be published in that issue.

PAYMENT DETAILS

Bank: FCMB

Account Number: 7278465011

Account Name: Gusau Journal of Accounting and Finance

FOR INQUIRY, CONTACT

Dr. A.U. Farouk

Department of Accounting and Finance,

Federal University Gusau, Zamfara State.

elfarouk105@gmail.com

+2348069393824

FOR MORE INFORMATION, CONTACT

The Editor-in-Chief on +2348067766435

The Associate Editor on +2348036057525

OR visit our website on www.gujaf.com.ng or journals.gujaf.com.ng

TABLE OF CONTENTS

The Impact of Gender Diversity on Earnings Quality of Listed Financial Services Firms in Nigeria: Analysis of Two-Stage Least Squares <i>Joseph Olorunfemi AKANDE, PhD</i>	1-18
The Impact of Audit Quality on Firm's Performance of Listed Consumer Goods Firms in Nigeria <i>Fatima Shehu Giwa, Prof. Benjamin Kumai Gugong, Gloria Pam Dachomo</i>	19-33
Women in Top Echelon Positions and their Effects on Carbon Emission Disclosure: Evidence from an Emerging Nation. <i>Saheed Olanrewaju Issa, Abdulkadri Toyin Alabi, Abdulbaki Teniola Ubandawaki</i>	34-47
CEO Characteristics and Financial Performance of Listed DMBs in Nigeria <i>Florence Bosede Ajagbonna, Benjamin Kumai Gugong, Augustine Ayuba, Idris Mohammed, Isuwa Dauda</i>	48-69
Post Covid-19 Pandemic: Comparative Study in the Value Relevance of Accounting Information Between Listed Manufacturing Firms and Listed Service Firms in Nigeria <i>Abbas, Abdulrahman Ngadi, Abubakar, Aliyu, Abdu, Abubakar</i>	70-87
Environmental and Social Information Disclosure Quality and Financial Performance of Listed Manufacturing Companies in Nigeria.: <i>Saka Tunde Abdulsalam, Ph.D</i>	88-108
The Impact of Corporate Social Responsibility on Bank Performance in Nigeria <i>Ibrahim Yinka Agbeyinka</i>	109-123
The Impact of Firm Characteristics on Accruals and Real Earnings Management of Listed Manufacturing Firms in Nigeria: <i>Muhammad, Aisha Chado</i>	124-142
The Impact of ESG Practices on the Risk Portfolio of Listed Oil and Gas Firms in Nigeria Using a Multilayered Criterion: <i>Joseph Olorunfemi Akande</i>	143-155
Effect of Selected Macroeconomic Variables on Stock Market Volatility in Nigeria <i>Hauwa Bayero Tijjani, Prof Sheikh Ahmad Abdullahi, Dr Ibrahim Mohammed, Dr Isma'il Tijjani Idris</i>	156-171
Moderating Effect of Audit Quality on Value Relevance of Fair Value Measurements Hierarchy of Listed Financial Services Companies: <i>Tesleem Olayinka Adeyemi</i>	172-202
Effect of Audit Quality Attributes and IFRS Adoption on Financial Reporting Quality of Listed Manufacturing Firms in Nigeria: <i>Muhammad, Aisha Chado</i>	203-221
Electronic Banking and Performance of Banking Sector in Nigeria <i>Kayode David Kolawole</i>	222-234

Do Audit Committee and Board Attributes Influence Environmental Disclosure: An Empirical Investigation of Listed Firms in Nigeria. Haruna Muhammed Musa	235-248
Impact of External Debts on Economic Growth in Nigeria Ibrahim Yinka Agbeyinka	249-261
Effect of Compliance Cost and Tax Burden on Tax Compliance of Small and Medium-Scale Enterprises in Benue State, Nigeria Okpe Caleb John, Prof. Aliyu Nuraddeen Shehu, Prof. Bello A. Ahmad, Ahmed Aliyu Abdullahi PhD, Mohammed Musa Abdulkarim PhD	262-282
The Effect of Bank Sectoral Credit and Exchange Rate on Financial Performance of Listed Manufacturing Firms in Nigeria. Ibrahim Kabir Adedeji, Dr Ibrahim Muhammed, Prof. Muhammed Habibu Sabari Prof. Abiodun Popoola	283-297
The Effects of Interest rate and Money Supply on Systematic Risk Associated with Return in Nigerian Exchange Adedokun Rofiat, Prof. Sani Abdullahi, Dr. Ibrahim Mohammed, Prof. Ahmad Dogarawa	298-314
Effect of Firm Attributes on the Growth of Healthcare Companies Listed on The Nigerian Exchange Group Salisu Isyaku Dahiru, Adeyemi Tesleem, PhD, Suleiman Salami, PhD	315-331
Corporate Social Responsibility and Performance of Firms in Lagos State Nigeria Kayode David Kolawole	332-343
Does Taxation Affect Banks' Profitability: Evidence from Nigeria Emmanuel Imuede Oyasor	344-356
Working Capital Management and Manufacturing Performance in Nigeria Adedeji Daniel Gbadebo	357-368
The Multidimensionality Foreign Direct Investment's Impact on The Economy Emmanuel Imuede Oyasor	369-383
Private Capital Formation, Public Sector Capital Formation and Economic Growth in South Africa. Ahmed Oluwatobi Adekunle ,.....	384-396
Macroeconomic Determinants and Stock Market Volatility amidst the Period of Economic Recession in Nigeria Hauwa Bayero Tijjani, Prof Sheikh Ahmad Abdullahi, Dr Ibrahim Mohammed Dr Isma'il Tijjani Idris	397-413

WOMEN IN TOP ECHELON POSITIONS AND THEIR EFFECTS ON CARBON EMISSION DISCLOSURE: EVIDENCE FROM AN EMERGING NATION

Saheed Olanrewaju Issa

Universiti Putra Malaysia, Malaysia
E-mail: issasaheed22@gmail.com
<https://orcid.org/0000-0002-8232-2585>

Abdulkadri Toyin Alabi

Kwara State University, Nigeria
E-mail: alabiabdulkadri@gmail.com
<https://orcid.org/0000-0002-3103-5367>

Abdulbaki Teniola Ubandawaki

The American University in Cairo, Cairo, Egypt.
E-mail: abdulbakiubandawaki@aucegypt.edu
<https://orcid.org/0009-0003-4108-4845>

DOI: <https://doi.org/10.57233/gujaf.v5i2.03>

Abstract

Gender diversity in leadership roles and carbon emissions disclosure are two subjects that are generating attention in the corporate landscape. Hence, this study aims to examine the impacts of women in top-echelon positions on carbon emission disclosure of Nigerian companies during the years 2012–2021. Content analysis was employed on the annual report and sustainability report of 12 sampled listed deposit money banks in Nigeria to capture data on carbon emissions. The collected data were analyzed with the aid of the generalized least squares (GLS) multiple regression technique. Using 120 firm-year paneled observations, the result of the GLS showed that women as CEOs, board members, and audit committee members are not a significant determinants of corporate carbon disclosure. The findings have significant implications both in theory and practice, as they contribute to the ongoing discussion about women in governance and corporate sustainability.

Keywords: Board Gender Diversity, CEO Gender Carbon Emission Disclosure, Women on Board, Environmental Sustainability

1.0 Introduction

Climate change has undoubtedly emerged as an important political and business issue for most countries, thereby making environmental sustainability a global concern. Governments and regulatory agencies around the world are constantly making efforts and trying to figure out the solution for deterioration and preventive measures for environmental problems such as carbon emissions. This is apparent in the series of climate change conferences and summits where leaders from various countries have convened to discuss environmental sustainability. The most recent conference was the UN Climate Change Conference (COP28) that took place in UAE in 2023, where leaders of over 100 countries (Nigeria inclusive) committed to reducing carbon emissions and achieving Sustainable Development Goals.

Nigeria, among others, has been identified as among the top environmental polluters that contribute significantly to global environmental problems. The total CO₂ emissions in Nigeria have increased by 214.04% from 1990 to 2020 (IEA, 2020). In addition, the 2022 World Bank Global Gas Flaring Tracker report rank Nigeria as the seventh-highest gas-flaring nation in the

world. Global Methane Tracker 2022 also ranked Nigeria ninth among the top ten emitters of methane in the world.

These low scores have led to intensive growth in investor demand and agitations for carbon emissions mitigation and disclosure. Many of these environmental challenges arise because of companies' actions and activities aimed at meeting their financial obligations. In response, many initiatives and agendas have emerged to promote sustainable development goals and the transition to cleaner energy. To monitor and support these efforts, corporate disclosure of carbon emissions has become increasingly encouraged.

Concern for the disclosure of carbon information makes it important and necessary to know the factors influencing management's decision to disclose such information to stakeholders. This study goes beyond demography and opens the black box of board executives by drawing upon theories of gender differences; the upper echelons theory posits that the top management's decisions are influenced by their individualized perspective, which is shaped by their unique experiences, values, personalities, and other human factors that could be linked to the gender of the executives. By diversifying the composition of boards, firms can benefit from the distinct viewpoints and experiences of female directors, who tend to be more attuned to environmental concerns. Existing research consistently suggests that women are more concerned about promoting sustainability and are likely to promote greater awareness of the importance of developing environmental disclosure strategies (Agarwal, 2010; Hossain et al., 2017).

In contrast to previous studies, our study investigates the impact of women in upper echelon positions on carbon disclosure. Notably, we differentiate between the roles held by women within the firm's top positions, such as board of directors, CEO, and board committees, which have received limited attention in existing literature. In addition, there is less evidence in the literature globally as to the relationship between female CEO and gender diversity of the AC effect on environmental disclosure in general and particularly carbon disclosure (Bravo & Reguera-Alvarado, 2018; Ararat & Sayedy, 2019; Wang & Sun, 2021). As such, this study is one of the first to provide evidence on their relationship in an emerging nation.

Another important gap in the literature is the use of dummy to measure carbon disclosure (e.g., Liao et al., 2015), which does not in any way depict its relevance. Addressing the concerns raised regarding how to measure disclosure, our study improves upon the limitations of previous research by adopting a scoring system and checklist that aligns with the Global Reporting Initiative (GRI) guidelines, as recommended by scholars (such as Muhammad & Aryani, 2021). Furthermore, there is one of the pioneer studies conducted in developing nations using GRI Standards 305: Emission checklist to capture carbon data.

Therefore, in an attempt to bridge gaps and overcome the limitations in the literature, this study investigated the impact of women in top-echelon positions on carbon emission disclosures in a developing nation context. This study is motivated by the dearth of studies on carbon disclosure in Nigeria, even though the country is among the countries with serious environmental problems.

2.0 Literature Review

Gender inclusion is considered one of the most intriguing human nature explored across several studies (Fernandez-Feijoo et al., 2014; Galbreath & Tisch, 2020; Liao et al., 2015). Gender diversity can be evaluated at various levels within an organization, and an increasing area of research has examined the impact of gender diversity on organizational outcomes. These include

studies focused on gender diversity at the board level (Cucari et al., 2018; Dang & Nguyen, 2016), gender diversity within board committees such as audit committees (Bravo & Reguera-Alvarado, 2018; Ararat & Sayedy, 2019), and gender diversity among CEOs (Smith et al., 2006; Glass et al., 2016). The underlying reasoning behind this is that boards, board committees, and CEOs can influence organizational decisions and strategies. For this study, gender diversity is defined as the active participation of both men and women on the board and its committees.

Board Gender Diversity

The concept of board diversity is investigated from a resource dependency theory viewpoint, which was proposed by Pfeffer and Salancik in 1978. This theory explains how an organisation's behaviour is determined by its need to acquire resources from its external environment. Carter et al. (2010) contends that diversity on an organisation's board, which improves decision-making, can be justified by the idea of resource dependency theory. The theory suggests that gender diversity, particularly with respect to traits traditionally associated with women, represents an essential resource for promoting an environmentally conscious strategy (Fernandez-Feijoo et al., 2014).

Kim (2022) conducted a study on the impact of female directors on the voluntary disclosure of carbon emissions information. The research utilized 9,406 firm-year observations spanning from 2014 to 2020 in South Korea. The results indicate that female representation on board significantly improves the voluntary disclosure of carbon emission information. Tingbani et al. (2020) investigated how board gender diversity affects greenhouse gas disclosures, using 215 sampled publicly quoted firms on the London Stock Exchange. Findings shows that board gender diversity has a strong positive impact on greenhouse gas disclosures. Ben-Amar et al. (2015) reported similar empirical findings, as they discovered that female directors enhance the probability of voluntary greenhouse gas emissions disclosure. The study utilized a sample of 541 quoted Canadian companies covered in the CDP Canada annual survey from 2008 to 2014.

Charumathi and Rahman (2019) conducted a study and found that board gender diversity has a positive impact on climate change-related disclosure in India. Hollindale et al. (2017) arrived at a similar finding, as they discovered that several female directors were more likely to provide higher-quality GHG emissions-related disclosures in Australia. Hussain et al. (2017) also found that women on board have a significant and positive impact on carbon disclosure using global data from 331 companies in 33 countries from 2011 to 2013. Carbon disclosure was captured using carbon disclosure scores from CDP Index. The empirical result shows that. Liao et al. (2014) also found that gender diversity is significantly and positively related to the propensity and level of carbon disclosure using data from 329 of the largest corporations in the United Kingdom for the year 2011. Findings revealed that the. Nevertheless, both studies could be enhanced by expanding the time horizon and covering a greater number of reporting periods.

Contrary to the above, Astuti and Setiany (2021) provided empirical evidence that board gender diversity has no significant impact on carbon emission disclosure. The study used data from 72 sampled quoted companies in Indonesia from 2017-2019. In addition, Kilic and Kuzey (2019) found that board gender diversity has an insignificant relationship with carbon emission disclosure using data from non-financial firms listed in Borsa Istanbul from 2011-2015. Ararat and Sayedy (2019) also found that female representation on board has no significant impact on the likelihood of voluntary climate change disclosure using CDP data from Turkish firms from 2010 to 2019.

Drawing on the principles of resource dependency theory, we propose that the inclusion of diverse genders on the board can enhance the quality of board discussions and bolster the board's ability to effectively supervise the company's disclosures and reports. As a result, we contend that a greater representation of women on the board increases the likelihood of carbon emission disclosure. Based on this reasoning, we propose the following hypothesis:

H₁: Board gender diversity has a significant positive impact on carbon emission disclosure.

CEO Gender Diversity.

According to the upper echelon theory proposed by Hambrick and Mason (1984), the values and cognitive bases of powerful actors in an organization shape its strategies and effectiveness. Carpenter et al. (2004) emphasized the need to examine gender as a characteristic that influences upper-echelon research. This assertion is supported by several scholars who have found a connection between the gender of CEOs and the adoption of environmentally friendly practices, particularly the reduction of carbon emissions (Kassinis, Panayiotou, Dimou, & Katsifaraki, 2016). This aligns with the argument that female CEOs prioritize making a positive impact on society and the world at large (Spencer, Blazek, & Orr, 2019).

Tran (2022) investigated the effect of CEO gender on corporate environmental performance in Vietnam from upper echelon theory view. The data used was sourced from a sample of 1,508 cooperatives spanning from 2014 to 2016. The hypotheses were tested using an OLS regression model. The result shows that CEO gender has an insignificant association with corporate environmental performance. Caby and Ziane (2022) also arrived at a similar conclusion, as they discovered that the sex of the CEO did not affect any of the climate change management scores using 836 sampled companies from 16 developed countries. Galbreath and Tisch (2020) investigated the effect of a female CEO on environmentally sustainable practices using data from the Australian wine industry. Drawing from stakeholder theory, findings show that female CEO has no significant impact on environmentally sustainable practices in Australia.

From upper echelon theory viewpoint, CEO gender diversity is expected to foster environmentally sustainable practices such as carbon emission disclosure. Thus, the following hypothesis is proposed:

H₂: CEO gender diversity has a significant positive impact on carbon emission disclosure.

Audit Committee Gender Diversity

Stakeholder theory is one of the most applied theories of environmental disclosures among scholars. Individuals or groups who have a special interaction with an agency due to their daily operations are referred to as stakeholders (Freeman et al., 2004). In line with stakeholder theory, multi-stakeholder governance considers adopting monitoring mechanisms to mitigate management opportunism and resolve information asymmetry issues (Rupley et al., 2012). The audit committee serves as a monitoring mechanism to ensure that information reported to interested stakeholders is of high quality (Collier, 1993). Gul et al. (2011) contend that gender diversity improves the ability of board subcommittees such as the audit committee to provide more effective oversight of a firm's disclosures and reports while also enhancing the dissemination of information to board stakeholders.

Bravo and Reguera-Alvarado (2018) investigated the connection between audit committee gender diversity and ESG reporting using data from 375 firm-year observations of firms quoted on the Madrid Stock Exchange from 2012 to 2015. The study's multiple regression analysis found that

gender diversity within the audit committee enhances the relevance and comprehensiveness of voluntary sustainability reporting. This is attributed to the monitoring role that women can play in fostering a greater stakeholder orientation and promoting the dedication to provide valuable sustainability information. In addition, Ararat and Sayedy (2019) also found that having women on board committees enhances the possibility of voluntary climate change disclosure using Turkish firms' data from 2010 to 2019. CDP data were used to measure the climate change disclosure of the sampled firms.

Wang and Sun (2021) arrived at a similar conclusion, as they discovered that female members of the audit committee are more successful than male members in increasing the extent of environmental disclosures. The study was based on a panel dataset of Chinese energy firms from 2012 to 2018. Their findings also support the positive role of gender diversity in enhancing environmental disclosure. Appuhami and Tashakor (2017) also found similar findings that AC gender diversity has a positive impact on CSR environmental disclosure. However, both studies did not use any theory to institutionalize the study's variables. In contrast, Said et al. (2020) found that AC gender has no significant impact on sustainability disclosure in Malaysian listed firms.

From a stakeholder theory viewpoint, the Audit Committee acts as an oversight tool for improving the level of information provided to interested parties (Collier, 1993). Based on these arguments, it can be inferred that gender diversity in audit committees enhances the monitoring effectiveness of the committee and leads to an increase in the level of carbon emission disclosure. Consequently, we propose the following hypothesis:

H₃: Audit committee gender diversity has a significant positive impact on carbon emission disclosure.

3.0 Methodology

This study used an expo-factor research design to investigate the impact of women in top echelon positions on carbon emission disclosures. This study's population includes all 14 listed deposit money banks (DMBs) in Nigeria as of December 31st, 2022. The study's sample comprised the 12 DMBs that had their annual reports and other relevant information accessible during the research period. Data was extracted from their annual report and stand-alone sustainability report from 2012 to 2021. The dependent variable, which is carbon emission disclosure (CD), will be measured using content analysis (Muhammad & Aryani, 2021; Sudiby, 2018). Unlike prior studies that relied on the CDP questionnaire to construct an assessment or scoring index (e.g., Matsumura et al., 2014), we utilised GRI Standards 305: Emission. This study used the GRI Standards 305 index because it is the most commonly used index for disclosing carbon-related activities by firms in Nigeria, making it a more suitable tool for evaluating carbon disclosure in Nigeria compared to the CDP questionnaire.

The measurement of carbon emission disclosure in this study involved three steps: First, a structured checklist was developed based on GRI Standards 305: Emission indicators. Second, a coding system was used, with '0' indicating the absence of disclosed information and '1' indicating its presence. Third, the carbon emission information disclosure was calculated using a content analysis approach with a simple unweighted average formula. Consequently, an index was created using the aforementioned three procedures to measure carbon emission disclosure in this study (Muhammad & Aryani, 2021).

$$CD = \sum \frac{CQ}{MX CQ}$$

Where: -

CD = Carbon Disclosure,

CQ = Carbon Information Scores,

MX CQ = Maximum disclosure scores for this study is 10.

Table 1
Variables Measurement

Variables	Nature of variable	Measurement	Sources
Carbon Emission Disclosure	Dependent variable	Disclosure score based on GRI Standards 305: Emission checklist.	(Muhammad & Aryani 2021)
Board Gender diversity	Independent variable	Proportion of women on the Board	(Hossain et al, 2017)
CEO Gender diversity	Independent variable	Equal to 1 if CEO is female and 0 if male	(Tran, 2022)
AC Diversity	Independent variable	Proportion of women in the AC	(Bravo & Reguera-Alvarado, 20180)
Firm Size	Control Variable	Firm's year-end total assets	(Tran, 2022)
Profitability	Control Variable	Net income divided by the firm's total asset at year's end	(Hossain et al, 2017)

Source: *Authors Compilation*

Model Specification

In this study, the following model is used to estimate the link between women in top leadership positions and carbon emission disclosure:

$$CD_{it} = \beta_0 + \beta_1 BGEN_{it} + \beta_2 CEOGEN_{it} + \beta_3 ACGEN_{it} + \beta_4 FSIZE_{it} + \beta_5 PROF_{it} + \epsilon_{it}$$

Where:

CD = Carbon Emission Disclosure;

β₀ = Intercept

β₁ to β₅ = Regression Coefficients

ε = Residuals

it = Panel Data Indicator

BGEN = Board Gender Diversity

CEOGEN = CEO Gender

ACGEN = Audit Committee Gender Diversity

FSIZE = Firm Size

PROF = Firm Profitability.

4.0 Results and Discussion

Descriptive statistics are used by researchers to effectively summarize and organize data in order to enhance understanding of the data.

Table 2
Descriptive Statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
CDIS	120	0.183	0.183	0	0.8
BGEN	120	0.221	0.114	0	0.455
CEOGEN	120	0.05	0.219	0	1
ACGEN	120	0.158	0.153	0	0.6
FSIZE (billions)	120	2,357	2,010	156	9,660
PROF	120	0.016	0.018	-0.095	0.061

Source: Author's Compilation

Carbon emission disclosure (CD) is a ratio that ranges from 0 to 1 and can also be expressed as a percentage. Based on the mean CD value of 0.183 presented in Table 3, the average CD during the study period was found to be low, at 18.3%. Additionally, the highest average disclosure rate was 80%, while the lowest was 0%, indicating wide variation. The average board gender is 22.1%, and the standard deviation of 11.4% shows moderate variance from the mean. The highest board gender diversity is 45.5% and the lowest is 0 indicating some sampled firms had no women on their board within the period covered in the study.

Table 3 also shows informative figures for the dummy variables. On average, only 5% of the sample corporations have a female CEO, implying that only a few proportions of firms appointed a female CEO. The audit committee gender diversity mean rating is 0.158%, indicating audit committees of the sampled companies have a comparatively poor degree of gender diversity in general. The standard deviation is 15.3%, which is close to the mean, showing that the gender diversity ratio of the observed companies clusters around each other. The highest AC gender diversity is 60%, and the lowest is 0, indicating some sampled firms had no women on their audit committee within the period covered in the study.

Profitability as indicated by the ROA has an average of 1.6%. The most profitable DMBs earn N0.06 per N1 of asset invested, and the maximum loss incurred is -N0.095 on N1 of asset invested. The standard deviation of 0.018 (1.8%), indicating a low level of variability in the return on total assets among the firms sampled during the study period. Firm size has a mean value of 2.3 trillion naira. The minimum and maximum asset value among the firms sampled is N156 billion and N9.6 trillion respectively.

Table 3 Correlation matrix

Variables	CDIS	BGEN	CEOGEN	ACGEN	FSIZE	PROF
CDIS	1.000					
BGEN	-0.032	1.000				
CEOGEN	-0.146	0.193	1.000			
ACGEN	0.153	0.252	-0.111	1.000		

FSIZE	0.470	-0.107	-0.108	0.142	1.000
PROF	0.122	-0.021	0.081	0.327	0.450 1.000

Source: Author’s Compilation

Board gender diversity and CEO gender have a negative relationship with carbon disclosure, while audit committee gender diversity, profitability, and firm size have a relationship with the carbon disclosure of listed DMBs in Nigeria. Table 3 additionally illustrates the correlation among the independent variables. Gujarati (2004) considers a correlation coefficient of more than 0.80 to be excessive. All correlation coefficients among the explanatory variables are below 0.80, which indicates the possible absence of harmful multicollinearity. This was further validated using the variance inflation factor.

Residuals Test

Several diagnostic tests were conducted, including multicollinearity, linearity, auto and serial correlation, heteroskedasticity, normality, and Hausman specification tests. According to the results presented in Table 3, it can be inferred that there are no multicollinearity issues because all the variables' VIF values are below 10, as suggested by Hair et al. (2006). Furthermore, the Hausman test was performed to determine the appropriate model between random and fixed effects. As shown in Table 3, the probability value is 0.1863. This indicates the random effect model is supported. As the test was insignificant, Lagrange Multiplier test was conducted to determine the best model to interpret between the random effect model and the pooled OLS. The result obtained showed that the random effect model is the most appropriate as the result is significant.

However, the result also shows the presence of autocorrelation and heteroskedasticity because the p-value of both tests is significant. This indicates that the random effect regression is not appropriate as the panel regression estimators may be biased (Hausman and Kuersteiner, 2008). To address the limitations of the random effects model in the presence of heteroskedasticity and autocorrelation, this study utilized the GLS model, as recommended by Westerlund and Narayan (2012). The GLS regression result is presented below.

Table 4: GLS Regression Result

ETR	Coef.	St.Err.	z-value	p-value
BGEN	0.004	0.137	0.03	0.975
CEOGEN	-0.056	0.070	-0.79	0.427
ACGEN	0.142	0.106	1.34	0.181
FSIZE	0.104	0.018	5.66	0.000
PROF	-1.412	0.956	-1.48	0.139
Constant	-2.748	0.516	-5.33	0.000
Number of obs	120	Hausman Test		0.1863
Wald-chi	39.99	LM test		
Prob > chi2	0.0000	Hetest		0.0000
Mean VIF	1.26	Auto Correlation Test		0.0154

Source: Author’s Compilation

Interpretation of the Model

The Wald chi-square value of 39.99 for the model presented in Table 4 exceeds 2, indicating that the model is appropriate for estimating the impact of independent variables on carbon emission disclosure. Additionally, all the explanatory variables in the model are statistically significant based on the probability of the Wald chi-square, which is significant at the 1% level. Therefore, the model is well-suited for examining the relationship between women in top echelon positions and carbon emission disclosure.

From the findings thus, the model of the study is:

$$CD_{it} = -2.748 + 0.004 BGEN_{it} - 0.056 CEOGEN_{it} + 0.142 ACGEN_{it} + 0.104 FSIZE_{it} - 1.412 PROF_{it}$$

Interpretation and Discussion of Finding

Board gender diversity has a positive impact on the disclosure of CO₂ emissions by listed DMBs in Nigeria, as evidenced with coefficient of 0.004 which is statistically insignificant. The finding is that carbon emission disclosure is not significantly influenced by board gender diversity. This opposes the notion that female directors are more environmentally conscious than their male counterparts. This finding does not support resource dependency theory, which proposes that the presence of women on boards can increase firms' attention to environmental issues and encourage the adoption of proactive strategies to address stakeholder demands for greater transparency in carbon emission reporting.

This study provides an empirical explanation that corporate carbon transparency and environmental responsibility, in general, depend firmly on objective actions and initiatives taken by the firm, rather than a feat that automatically comes with gender inclusion. While gender inclusion among the top executives might help accommodate divergent opinions and viewpoints in shaping the organizational direction, for organizations to see the results of certain performance or corporate responsibility parameters, there must be a strong corporate will and commitment to doing the necessary work required to achieve such a goal.

The finding is consistent with previous studies (Astuti & Setiany, 2021; Ararat & Sayedy, 2019) that female directors have no impact on the disclosure of carbon emissions. But dissimilar to those of Kim (2022), Ben-Amar et al. (2015), and Hussain et al. (2017) that female directors enhance disclosure of carbon emissions. The p-value is more than 5%, hence this study rejects the hypothesis that board gender diversity has a significant positive impact on carbon emission disclosure.

CEO diversity also has an insignificant impact on the carbon emission disclosure of listed DMBs in Nigeria, as shown by the prob value of 0.427. This implies that a female CEO has no significant relationship with carbon disclosures. This is against the notion that female CEOs tend to be more environmentally conscious than their male counterparts. The results contradict the view of the upper echelon theory but support the findings of Tran (2022), Galbreath and Tisch (2020), and Caby and Ziane (2022), who found that female CEOs have no significant impact on environmentally sustainable practices. Since the p-value is more than 5%, this study rejects the

second hypothesis that CEO gender diversity has a significant positive effect on carbon emission disclosure.

Audit committee gender diversity also has an insignificant impact on the carbon emission disclosure of listed DMBs in Nigeria, as evidenced with the prob value of 0.181. This shows that female representation in the AC has no significant effect on carbon disclosure among listed DMBs in Nigeria. In this respect, the low percentage of females on the AC of the sampled banks during the study's time span could explain the statistically insignificant association with carbon disclosure. This finding of the study supports the study of Said et al. (2020). However, the result contradicts stakeholder theory view, and the findings of Bravo and Reguera-Alvarado (2018), Ararat and Sayedy (2019), and Wang and Sun (2021). The p-value is more than 5%; hence, this study rejects the hypothesis that audit committee gender diversity has a significant positive impact on carbon emission disclosure.

5.0 Conclusion and Recommendations

Gender diversity in top management teams and the adoption of environmental sustainability strategies are two critical topics that are gaining momentum on corporate agendas. There are increasing pressures for women's representation in top positions from diverse stakeholders, such as the stock exchanges, national governments, employer lobby groups, and shareholders, among others. Drawing from Upper Echelon, stakeholder, and resource dependency theoretical frameworks, this study provides novel insights into the connection between women in top echelon positions (Board gender diversity, female CEO, and AC gender diversity) and carbon emission disclosures from an emerging nation perspective. Content analysis was utilized on annual and stand-alone sustainability report of 12 listed DMBs in Nigeria from 2012-2021. The carbon emission disclosure was measured based on GRI Standards 305: Emission checklist. The findings indicate that board gender diversity, female CEO and AC gender diversity have no significant impact on carbon emission disclosure. This contradicts the notion that women in leadership positions often prioritize social and environmental issues and promote greater transparency in carbon emission reporting than their male counterparts.

Our study extends both upper-echelon and resource dependence theories and contributes to the ongoing debate about the role of women in top positions by demonstrating that women in corporate top-echelon positions have no significant impact on carbon emission disclosure in the Nigerian banking sector. This research adds to the growing body of literature on the role of gender diversity in promoting sustainable business practices and sheds light on the impact of gender diversity in audit committees on carbon emission disclosures, which has received little attention in previous studies.

Our results contribute to the growing body of literature on female representation in top positions. The research findings present implications for both regulatory bodies and corporate practice. The study's findings are relevant to policymakers who are implementing gender quota legislation and other initiatives aimed at promoting gender diversity in corporate governance. The result suggest banks and policymakers should focus on broader culture of environmental sustainability accountability to enhance carbon disclosure practices. Banks should establish clear metrics and accountability mechanisms for carbon disclosure, ensuring that all directors are engaged actively in promoting such practices.

While Nigeria has adopted several frameworks to enhance corporate governance, such as the Nigerian Code of Corporate Governance, enforcement remains inconsistent. Weak regulatory monitoring, coupled with corruption in some sectors, may hinder the efficacy of governance reforms. This may elucidate why certain governance structures, such as female representation in leadership positions, have demonstrated no significant impact on carbon disclosures in this research.

Governance code regulators should take the necessary measures to require corporate bodies to minimize their carbon emissions and disclose carbon information through annual reports or stand-alone sustainability reports, as the findings show a low average carbon disclosure level. The regulatory environment's effort to ensure that companies build a culture of carbon transparency is an important step in decarbonizing the business environment. This will provide an avenue to access how companies are doing with regards to their carbon mitigation commitment and pave the way to decide on needed policy actions.

Despite the study's contributions, it is subject to certain limitations, just like other empirical studies. The study suffered some limitations, among which it only focused on listed deposit money banks in Nigeria. Secondly, this investigation solely focused on the content analysis of the information presented in annual reports and stand-alone sustainability reports; thus, some firms may disclose their carbon information via other outlets like magazines, newspapers, or corporate websites. Future research may consider using these other ways to collect information other than annual reports. Future studies can also include unlisted banks or other financial firms to enhance external validity. Future studies can also examine the relationship in sectors that have a direct contribution to carbon emissions, such as the energy and industrial sectors. Although this study has some limitations, the value of the research is still validated by the rigorous methodology employed in measuring the variables, the careful establishment of the findings, and the adequate observation of the research context. While the limitations of the study cannot be ignored, they do not detract from the overall validity of the research findings. Instead, they provide opportunities for future studies to improve on the research design and methodology.

References

- Agarwal, B. (2010). *Gender and green governance*. Oxford: Oxford University Press.
- Airvisual. (2021). 2021 World Air Quality Report. Region & City PM2.5 Ranking. Retrieved from <https://www.iqair.com/world-most-polluted-cities/world-air-quality-report-2021-en.pdf?srsltid=AfmBOooIL-CGQcK9LvHN0a07cTNJkbsOYvmR5JC5lWaA97LA8EW1eTvI>
- Appuhami, R., & Tashakor, S. (2017). The impact of audit committee characteristics on CSR disclosure: An analysis of Australian firms. *Australian Accounting Review*, 27(4), 400–420. <https://doi.org/10.1111/auar.12170>
- Ararat, M., & Sayedy, B. (2019). Gender and climate change disclosure: An Interdimensional policy approach. *Sustainability*, 11(24), 7217. <https://doi.org/10.3390/su11247217>
- Aryani, Y.A., Muhammad, G.I. (2021). The impact of carbon disclosure on firm value with foreign ownership as a moderating variable. *Jurnal Dinamika Akuntansi Dan Bisnis*, 8(1): 1-14. <https://doi.org/10.24815/jdab.v8i1.17011>

- Ben-Amar, W., Chang, M. & McIlkenny, P. (2017). Board gender diversity and corporate response to sustainability initiatives: evidence from the carbon disclosure project. *Journal of Business Ethics*, 142(2), 369-383.
- Bravo, F., & Reguera-Alvarado, N. (2018). Sustainable development disclosure: Environmental, social, and governance reporting and gender diversity in the audit committee. *Business Strategy and the Environment*. <https://doi.org/10.1002/bse.2258>
- Caby, J., Coron, C., & Ziane, Y. (2022). The Effect of Top Management Team Gender Diversity on Climate Change Management: An International Study. *Sustainability*, 14(2), 1032. <http://dx.doi.org/10.3390/su14021032>
- Carpenter, M. A., Geletkanycz, M. A., & Sanders, W. G. (2004). Upper Echelons Research Revisited: Antecedents, Elements, and Consequences of Top Management Team Composition. *Journal of Management*, 30(6), 749-778.
- Charumathi, B., & Rahman, Z. (2019). Board gender diversity and climate change-related disclosure in India. *Journal of Cleaner Production*, 21(2), 1036-1048.
- Collier, P. (1993). Factors affecting the formation of audit committees in major UK listed companies. *Accounting and Business Research*, 23(1), 421-430.
- Cucari, N.; Falco, S.E.D. & Orlando, B. (2018). Diversity of Board of Directors and Environmental Social Governance: Evidence from Italian Listed Companies. *Corp. Soc. Responsib. Environ. Manag.*, 25, 250-266.
- Dang, R. Nguyen, D.K. (2016). Does Board Gender Diversity Make a Difference? New Evidence from Quantile Regression Analysis. *Manag. Int.*, 20, 95-106.
- Fernandez-Feijoo, B., Romero, S., & Ruiz-Blanco, S. (2014). Women on boards: Do they affect sustainability reporting? *Corporate Social Responsibility and Environmental Management*, 21(6), 351-364. <https://doi.org/10.1002/csr.1329>
- Freeman, R. E., Wicks, A. C., & Parmar, B. (2004). Stakeholder theory and? The corporate objective revisited? *Organization Science*, 15(1), 364-369. <https://doi.org/10.1287/orsc.1040.0066>
- Galbreath, J., & Tisch, D. (2020). The effects of women in different roles on environmentally sustainable practices: Empirical evidence from the Australian wine industry. *Australasian Journal of Environmental Management*, 27(4), 434 -451.
- Glass, C. Cook, A. & Ingersoll, A.R. (2016). Do Women Leaders Promote Sustainability? Analyzing the Effect of Corporate Governance Composition on Environmental Performance. *Bus. Strategy Environ*, 25, 495-511.
- Gujarati, D. N. (2004). *Basic Econometrics*. In *Basic Econometrics*. <https://doi.org/10.1057/9780230226203.0425>
- Gul, F.A., Srinidhi, B. and Ng, A.C. 2011, 'Does Board Gender Diversity Improve the Informativeness of Stock Prices? ', *Journal of Accounting and Economics*, 51(3), 314-38.
- Hambrick, D. C. (2018). Upper Echelons Theory. In A. M., & T. D. J. (Eds.), *The Palgrave Encyclopedia of Strategic Management* 1782-1785. London: Palgrave Macmillan.

- Hausman, J., & Kuersteiner, G. (2008). Difference in Difference Meets Generalized Least Squares: Higher Order Properties of Hypotheses Tests. *Journal of Econometrics* 144(2), 371–91. doi: 10.1016/j.jeconom.2008.04.003
- Hollindale, J., Kent, P., Routledge, J., & Chapple, L. (2017). Women on boards and greenhouse gas emission disclosures. *Accounting & Finance*, 59(1), 277–308. <https://doi.org/10.1111/acfi.12258>
- Hossain, M., Farooque, O. A., Momin, M. A., & Almotairy, O. (2017). Women in the boardroom and their impact on climate change related disclosure. *Social Responsibility Journal*, 13(4), 828–855. <https://doi.org/10.1108/SRJ-11-2016-0208>
- Kassinis, G., Panayiotou, A., Dimou, A., & Katsifaraki, G. (2016). Gender and Environmental Sustainability: A Longitudinal Analysis. *Corporate Social Responsibility and Environmental Management*, 23(6), 399–412.
- Kılıç, M. and Kuzey, C. (2019), The effect of corporate governance on carbon emission disclosures: Evidence from Turkey. *International Journal of Climate Change Strategies and Management*, 11(1), 35-53.
- Kim, E. (2022). The Effect of Female Personnel on the Voluntary Disclosure of Carbon Emissions Information. *International Journal of Environmental Research and Public Health*, 19(20), 13247.
- Liao, L., Luo, L. and Tang, Q. (2015), Gender diversity, board independence, environmental committee and greenhouse gas disclosure, *The British Accounting Review*, 47(4), 409-424. <http://dx.doi.org/10.1016/j.bar.2014.01.002>
- Matsumura, E. M., Prakash, R., & Vera-Muñoz, S. C. (2014). Firm-Value Effects of Carbon Emissions and Carbon Disclosures. *The Accounting Review*, 89(2), 695–724. <https://doi.org/10.2308/accr-50629>
- Pfeffer, J., and Salancik, G. R. (1978). *The external control of organizations: A resource dependence approach*. New York: Harper and Row Publishers.
- Rupley, K., Brown, D., & Marshall, S. (2012). Governance, Media and the Quality of Environmental Disclosure. *Journal of Accounting and Public Policy*, 31(6), 610–640.
- Said, R., Abdul Rashid, R., & Zakaria, Z. (2020). The influence of audit committee gender diversity on sustainability disclosure in Malaysia. *Sustainability Accounting, Management and Policy Journal*, 11(2), 436-460
- Smith, N. Smith, V. Verner, M. (2006). Do Women in Top Management Affect Firm Performance? A Panel Study of 2,500 Danish Firms. *Int. J. Product. Perform. Manag*, 55, 569–593.
- Spencer, S. M., Blazek, E. S., & Orr, J. E. (2019). Bolstering the female CEO pipeline: Equalizing the playing field and igniting women’s potential as top-level leaders. *Business Horizons*, 62(5), 567-577.
- Sudibyo, Y. A. (2018). Carbon emission disclosure: does it matter. *IOP Conference Series: Earth and Environmental Science*, 10(6), 12-36. <https://doi.org/10.1088/1755-1315/106/1/012036>
- Tingbani, I., Chithambo, L., Tauringana, V., & Papanikolaou, N. (2020). Board gender diversity,

environmental committee and greenhouse gas voluntary disclosures. *Business Strategy and the Environment*. <https://doi.org/10.1002/bse.2495>

Tran, N. M. (2022). CEO and Chairperson Characteristics and Corporate Environmental Performance: A Study of Cooperatives in Vietnam. *SAGE Open*, 12(4) <https://doi.org/10.1177/21582440221129241>

Wang, Y., & Sun, X. (2021). Gender diversity of the audit committee and environmental disclosure: Evidence from Chinese energy firms. *Business Strategy and the Environment*, 30(5), 2012-2023.

World Bank. (2022). *Global gas flaring tracker report. Global gas flaring reduction partnership*. Washington, DC. USA: World Bank Publications.