International Journal of Applied Economics, Finance and Accounting
ISSN 2577-767X
Vol. 18, No. 2, pp. 270-281
2024
DOI: 10.33094/ijaefa.v18i2.1387

Does the strength of women in the upper echelon influence earnings quality? The application of critical mass theory

Eghosa Godwin Inneh[1*]
Tajudeen John Ayoola[2]
Omoneye Olufunke Olasanmi[3]
Isaiah Omotayo Fakunle[4]
Olusola Adedoyin Ologunde[5]

[1,2,3,5]*Department of Management & Accounting, Obafemi Awolowo University, Ile-Ife, Nigeria.*
[1]*Email: eghinneh@oauife.edu.ng*
[2]*Email: alabiayoolaaca@oauife.edu.ng*
[3]*Email: oolasanmi@oauife.edu.ng*
[5]*Email: aologund@oauife.edu.ng*
[4]*Department of Accounting and Finance, Kings University, Ode-Omu, Nigeria.*
[4]*Email: io.fakunle@kingsuniversity.edu.ng*

Keywords:
Audit committee
Board of directors
Critical mass theory
Deposit money banks
Earnings quality.

JEL Classification:
G34; J16; M1.

Received: *19 July 2023*
Revised: *8 December 2023*
Accepted: *3 January 2024*
Published: *13 February 2024*
(Corresponding Author)*

Abstract

Globally, several financial scandals were witnessed within the first decade of the 21st century that necessitated a robust corporate governance mechanism to improve financial reporting quality. Empirical evidence shows that men dominate the boards involved in these scandals. In an attempt to restore the confidence of stakeholders in the financial report, financial regulatory authorities in European Union economies recommend a well-constituted gender-diverse board where the marginalised gender is at least 40 percent of the board. However, in Nigeria, there is little research on women's participation in corporate board decisions taken into cognizance of critical mass theory. Thus, the study investigates how the critical mass of female representation on the corporate board and audit committee affects earnings quality. The study employs a longitudinal design by collecting secondary data on eleven deposit money banks from 2011-2022. The study uses data collected after testing endogeneity problems using Hausman's test. The results show that females on the board and audit committee significantly affect the quality of earnings when reaching the critical mass threshold. The study provides policy implications for supporting more significant involvement of women in board and audit committees based on business cases rather than social justice. Hence, this study proposes a mandatory thirty percent threshold compliance for board gender diversity, which the Central Bank of Nigeria voluntarily recommended.

Funding: This study received no specific financial support.
Institutional Review Board Statement: Not applicable.
Transparency: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.
Data Availability Statement: The corresponding author may provide study data upon reasonable request.
Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

1. Introduction

Globally, the banking industry is a crucial sector in any economy as it allows deficit units to access funds from surplus units, promoting national economic growth. Based on the importance of the banking sector, numerous stakeholders have relied on the banks' financial reports to make informed economic judgments. However, after the global financial scandals, stakeholders doubted the quality of banks' audit reports as a reflection of economic reality (Kanagaretnam, Lim, & Lobo, 2014). Also, the management is accused of engaging in opportunistic behaviour due to information asymmetries created by the agency contract (Abad,

Lucas-Pérez, Minguez-Vera, & Yagüe, 2017; Elzahar, Zalata, & Hassaan, 2022; Srinidhi, Gul, & Tsui, 2011). Information asymmetry and opportunistic management behaviour result from the execution of management stewardship (Jensen & Meckling, 1976; Shleifer & Vishny, 1989). Furthermore, extant studies by Beatty and Liao (2015); García Lara, García Osma, Mora, and Scapin (2017) and Leventis, Dimitropoulos, and Owusu-Ansa (2013) affirm that asymmetric information is more pronounced in the banking sector than in other economic sectors. To reduce this agency problem, there is a need for a robust corporate governance mechanism with an effective board of directors. The board controls and supervises management activities to protect various stakeholders (Fama & Jensen, 1983; Zahra & Pearce, 1989). Despite the board's existence, there are colossal corporate scandals (e.g., Lehman Brothers, Enron, and American International Group (AIG)), especially in the twenty-first century's first decade. The board of these financial scandal companies is accused of gender imbalance (male-dominated or skewed) (Adams & Funk, 2012; Güner, Malmendier, & Tate, 2008). In restoring the stakeholders' faith in the financial report, the board should be gender-diverse to enhance earnings quality (Chen, Cheng, & Wang, 2015; Pham, Chung, Roca, & Bao, 2019).

Gender diversity has taken centre stage in the last decade across the globe (Dobija, Hryckiewicz, Zaman, & Puławska, 2022; Nguyen, Ntim, & Malagila, 2020; Yarram & Adapa, 2021; Zalata, Ntim, Alsohagy, & Malagila, 2022). However, for females to significantly influence board decisions, this sex group should attain a critical mass threshold (García-Meca, López-Iturriaga, & Santana-Martín, 2022; Kanter, 1977; Post & Byron, 2015; Rahman & Sah, 2022; Schwartz-Ziv, 2017; Strydom, Au Yong, & Rankin, 2016). The critical mass threshold is the sufficient number of a marginalised group that can significantly influence the company's decisions (De Masi, Słomka-Gołębiowska, Becagli, & Paci, 2021; Kanter, 1977). Proponents of critical mass postulate that the threshold of critical mass is not only about achieving fairness but also for business cases (Jouber, 2022; Kanter, 1977; Kramer, Konrad, Erkut, & Hooper, 2008; Krishnan & Parsons, 2008; Wicker, Feiler, & Breuer, 2022). In support of the critical mass, women are believed to be ethical (Adams & Funk, 2012; Lund, 2008; Tate & Arend, 2022; Toukabri & Jilani, 2022), conservative, and risk-averse (Foster, Fernholm, & Brunnberg, 2023; García-Meca, García-Sánchez, & Martínez-Ferrero, 2015; García-Sierra & Sánchez Castillo, 2022; Gul, Hutchinson, & Lai, 2013), which are essential characteristics in mitigating risks against earnings management and invariably enhancing earnings quality. In European Union countries, gender diversity policies are geared toward a balanced board; the marginalised sex, usually the female, must have at least 40 percent representation (Kirsch, 2018; Terjesen & Sealy 2016; Zalata et al., 2022). The earnings quality and gender diversity association has been understudied (Zalata et al., 2022). Wiley and Monllor-Tormos (2018) claim that gender-related studies in the United States of America (US) fail to consider the critical mass threshold. Post and Byron (2015) assert that gender-related studies failed to consider the females' critical mass inclusion on the board. Based on those mentioned above, limited empirical evidence (e.g., (Dobija et al., 2022; Joecks, Pull, & Vetter, 2013; Nerantzidis, Tzeremes, Koutoupis, & Pourgias, 2022; Nuber & Velte, 2021; Wiley & Monllor-Tormos, 2018) takes cognisance of the critical mass of females in gender-related studies. Despite the Central Bank of Nigeria's (CBN) gender policy to ensure that women reach the critical mass threshold in the upper echelon, limited studies consider this threshold in gender-related studies. In Nigeria, most studies (e.g., (Akinkoye & Fapohunda, 2019; Gbarato, 2020)) examine gender diversity and firm performance. However, limited studies (e.g., (Enofe, Iyafekhe, & Eniola, 2017)) exist on gender diversity and earnings quality, let alone considering the effect of the critical mass threshold. Our study fills the gap in knowledge by contributing to the limited empirical literature on gender diversity and earnings quality. The study covers the Nigerian Deposit Money Banks (DMBs), as the sector has witnessed several financial scandals. Secondly, banking is the only sector in Nigeria where the CBN recommends voluntary compliance by meeting the 30% threshold for female board members. The study period covers 2011-2022, during which the diversity of gender influences on the quality of earnings of DMBs in Nigeria will be examined. The base year 2011 is justified by the Financial Reporting Council of Nigeria (2011) Act, which is the first released gender policy that affects the board composition. The study employs ordinary least squares, considers the possible endogeneity problem, and performs a robustness check using the critical mass threshold of at least three female board members, the proportion of women, and the tokenism threshold of 15 percent. The result indicates that women's strength in numbers is positively related to earnings quality. The rest of the paper comprises the literature review, methodology, result and interpretation, and conclusion and recommendation.

2. Nigeria Institutional Framework on Gender Diversity

In Nigeria, the Financial Reporting Council of Nigeria (2011) Act Section 54 Sub-Section 1 stipulates that the board should be diverse regarding experience and gender. The Financial Reporting Council of Nigeria (2011) Act further states that board diversity should result in members' independence, skills, integrity, and motivation to attend and participate in the meeting. Despite the recommendation of gender diversity by the Financial Reporting Council of Nigeria (2011) Act, there was no provision or recommendation of a fixed quota to inspire board participation of women; hence, most quoted companies, other than DMBs, tilted towards social identity or similarity attraction gender group by having just a female member in the decision-making board. Contrary to the Financial Reporting Council of Nigeria (2011) Act, Central Bank of Nigeria (2012) stipulates that at least 40% of the entire DMBs' management team must be female (International Finance

Corporation, 2019). In 2014, the CBN recommended a voluntary threshold of 40% of the DMB's board members to be female (PWC, 2020). Also, in 2018, the apex body mandated that a minimum of 30% of board members be female (International Finance Corporation, 2019). The CBN's gender policy is directed towards increasing women's board participation to probably unlock the benefits associated with women's social associations for business or fairness and justice.

3. Literature Review

There is no accepted standard definition for earnings quality (Abdelghany, 2005; Beneish, 2001; Inneh, Obokoh, & Busari 2020) as numerous researchers and professionals, such as financial analysts, auditors, and other financial statement users, view the concept differently (Kirschenheiter & Melumad, 2002). For instance, accounting practitioners and auditors view the concept concerning earnings management and assume that financial reporting shows higher quality when it exhibits low earnings management(Brown, 1999; Healy & Wahlen, 1999). Capital market analysts view earnings as quality when they provide information about future performance and cash flow (Ball & Shivakumar, 2005; Bellovary, Giacomino, & Akers, 2005). Beneish (2001) posits that earnings quality provides informative and opportunistic perspectives about the company. The informative perspective posits that earnings should give information about cash flow changes and the firm's performance. The opportunistic perspective, on the other hand, contends that managers manipulate results in order to deceive accounting information users because information asymmetry increases agency costs. Hence, the onus rests on the board to ensure the earnings quality demonstrates both perspectives. However, most earnings quality studies focus on the opportunistic perspective, neglecting the earnings management's informative content (Brennan, 2021).

The board is the apex body charged with entity governance's primary responsibility, including monitoring, advising, controlling, and supervising management activities (Åberg, Bankewitz, & Knockaer, 2019; Gull, Nekhili, Nagati, & Chtioui, 2018). The management may exploit the information asymmetry and engage in opportunistic behaviour for personal benefit (Krishnan & Parsons, 2008; Srinidhi et al., 2011) which aligns with the agency theory. However, the board is expected to minimise the agency problem created by information asymmetry (Gul, Srinidhi, & Ng, 2011; Srinidhi et al., 2011). The greater participation of women on the board may mitigate opportunistic behaviour since women are known to be morally conserved (Harris, Karl, & Lawrence, 2019; Kao, Huang, Fung, & Liu, 2020; Tang, Lee, Lee, & Huang, 2020; Zalata et al., 2022). Similarly, the board is responsible for building and maintaining a corporate image, creating social and business networks, and managing corporate resources (Åberg et al., 2019) aligning with the resource dependency theory. Wiley and Monllor-Tormos (2018) posit that managing the company's resources effectively and reducing the information asymmetry requires board diversity. The argument for more women is premised on attributes such as ethics (Cumming, Leung, & Rui, 2015; Levi & Zhang, 2010; Nuber & Velte, 2021) conservation (Baixauli-Soler, Belda-Ruiz, & Sanchez-Marin, 2015; Gavious, Segev, & Yosef, 2012) risk-averseness (Byron & Post, 2016; Khazanchi, 1995), heterogeneous opinion (Burgess & Tharenou, 2002) and independence (Carter, Simkins, & Simpson, 2003; Srinidhi et al., 2011) among other attributes exhibited by the female group. Conversely, similarity attraction theory posits that diversity often leads to a lack of cooperation, distrust, and conflict between one social group and the other (Wiley & Monllor-Tormos, 2018). Similarly, social categorisation theory holds that members within a particular social group tend to trust, cooperate, and relate to the members within their group compared to outside members. Most countries structured gender policies based on social categorisation before the global financial scandals and crises. For example, ten percent of companies in the USA had no female representation, and 75 percent had a token female representation (Catalyst, 2013). In Nigeria, gender-related policies issued by the Financial Reporting Council of Nigeria (2011) stipulate that the board should be diverse without giving a fixed quota. However, most listed firms in Nigeria, just like in the USA, have just one female member. However, Kramer et al. (2008) claim that when a board consists of only one woman, she experiences the limitations of tokenism. Kanter (1977) asserts that when women are less than 15 percent of the board members, the group is regarded as a token or a symbol; hence, this social group is marginalised and cannot significantly influence the board decision. Hence, the female group influences the boardroom decision when the critical number or proportion of the threshold is attained (Joecks et al., 2013; Kanter, 1977; Wiley & Monllor-Tormos, 2018).

The theory of critical mass is the appropriate inclusion of the under-represented group, more often than not the female group, to the entire members capable of significantly influencing the board's policy as a group but not a token (Kanter, 1977). There is no consensus on the critical mass threshold. Meanwhile, Kanter (1977) assumes that the threshold for critical mass for women is at least 15 percent; Konrad, Kramer, and Erkut (2008) and Kramer et al. (2008) assume the magic number of 3 female members. Joecks et al. (2013) postulate that 30% is required to achieve the critical mass of female board representation. However, the proponents of the critical mass theory assume that the benefits of women on the board are not unlocked except when the critical mass threshold is reached.

The critical mass threshold premised their argument on the assumption that a curvilinear relationship or U shape exists in gender diversity-related studies (Nuber & Velte, 2021; Wiley & Monllor-Tormos, 2018), and the female sex group is assumed to be the stereotyped social group, unlike the agency and resource-based theory that assumes a linear relationship. In line with the abovementioned, Schwab, Werbel, Hofmann, and

Henriques (2016) assert that it is impossible to find a 100percent board dominated by females or the male group being regarded as a token. Women achieving critical mass is so important in the board's composition, yet limited studies (e.g., (Joecks et al., 2013; Nuber & Velte, 2021; Wiley & Monllor-Tormos, 2018)) have examined its effect in gender-related studies.

3.1. Hypothesis Development

Globally, limited studies (e.g., (Enofe et al., 2017; García Lara et al., 2017; Srinidhi et al., 2011; Sun, Liu, & Lan, 2011)) exist on gender diversity and earnings quality. Most prior literature is premised on agency and resource dependency theories, which assume a linearity of gender diversity and quality of earnings. Post and Byron (2015) assert that linear empirical studies fail to take cognizance of the critical mass threshold in resolving the conflict of mixed results. Joecks et al. (2013); Kanter (1977); Kramer et al. (2008) and Konrad et al. (2008) postulate a curvilinear association existing between gender diversity and firm performance. The critical mass proponents assume that the benefit of board inclusion for women is unlocked when the threshold is attained. Beyond the optimal tipping point of the critical mass, the female members will become the dominant group. The male group will metamorphose into a symbol or token, which may lead to dysfunctional conflict between both sex categories (Nguyen, Locke, & Reddy, 2015). To affirm this, Schwab et al. (2016) claim that "too little or too much" of a particular sex category leads to dysfunction in group dynamics.

Although there is limited empirical literature on the subject matter, studies showed that when the threshold for a critical mass of women available on the audit committee in particular and the board, in general is attained, the relationship with quality of earnings is positive and significant.

Hence, the study hypotheses that:

H_{11}: *The critical mass of women on board is significant and positively related to earnings quality.*

H_{12} : *The critical mass of women on the audit committee is significant and positively related to earnings quality.*

4. Research Design

4.1. Population and Sample Selection

Our study uses all 14 DMBs quoted on the Nigerian Exchange Group Plc (NGX)as of 2022 as the initial sample size, utilising the census sampling technique. However, the study exempts DMBs incorporated within the period (2011-2022), resulting in Jaiz Bank not being considered a sample. Also, we select DMBs whose audited financial reports were consistently issued from 2011-2022. The DMBs that failed to publish their financial information on any of the variables of interest inthe study are not considered a sample. The criteria resulted in 11 DMBs and 132 firm-year observations being selected as samples. Audited financial statements of 11 DMBs that meet the criteria from 2011-2022 served as the ultimate data source. Based on those mentioned above, the study uses balanced panel data within a longitudinal research design context.

4.2. Model Specification and Measurement of Variables

Our study premises the earning quality model from the two perceptions (opportunistic and information) as postulated by the Beneish (2001) constituent with studies (Tucker & Zarowin, 2006). The study adopts the earnings quality model used in the studies (García-Meca & García-Sánchez, 2018; Kanagaretnam et al., 2014) in which the model considers the informative and opportunistic aspects as postulated by Beneish (2001) and also its suitability in the banking industry. The model is as stated as

$$EQ = EBT_{it+1}LLP_{it+1}(1)$$

The EQ denotes the earning quality, while the EBT_{it+1} connotes lead-year earnings before tax andthe DMBs performance, which covers the informative aspect. In contrast, the Loan Loss Provision (LLP)covers the opportunistic aspect achievable through the accounting framework used by the firm within the framework of IFRS and IAS. Women's strength is measured by the threshold of a critical mass of women on both the audit committee and the board. Hence, the association between women's strength and quality of earnings is mathematically stated as follows:

$$EBT.LLP = \beta_0 + \sum_{n=1}^{2} SOW(2)$$

We proxy the strength of women into two parts:the strength in the boardroom and audit committee, taking into account the critical mass theory. Hence, the association between the earning quality and the strengthin theof women is functional

$$EBT.LLP = \beta_0 + \beta_1 CMWOB + \beta CMWOAC \qquad (3)$$

Earning predictability is a proxy for earnings quality. The critical mass of women on the board (CMWOB) and the critical mass of women on the audit committee (CMWOAC) are indicators of women's strength.The CMWOB is measured as a dichotomous variable with a value of one, provided the proportion of female involvement in the board is at least 30 percent, zero otherwise, consistent with the study (Wiley & Monllor-Tormos, 2018). The study expects a positive association between earnings quality and the CMWOB; this is premised on the assertion that females manage firm resources judiciously in an ethical manner, which is consistent with the studies (Gavious et al., 2012; Ghosh, Marra, & Moon, 2010). Also, the audit committee performs supervisory, control, and monitoring duties. The study predicts a positive association between CMWOAC and earnings quality, which aligns with prior studies (Lin & Hwang, 2010; Sun et al., 2011).

Furthermore, other board characteristics of independence, meeting, and size are included as control variables, as shown in Equation 4.

$$EBT.LLP_{it} = \beta_0 + \beta_1 CMWOB_{it} + \beta_2 CMWOAC_{it} + \beta_3 BI_{it} + \beta_4 BFE_{it} + \beta_5 BS_{it} + \beta_6 BM_{it} \quad (4)$$

Empirical evidence shows that board independence and earnings quality positively relate to studies (e.g., (Gavious et al., 2012; Peasnell, Pope, & Young, 2005)). A large board size has a higher likelihood of better deliberation, especially with several diversities such as academic qualifications, experiences, ethnicity, and nationality. Literature shows that earnings quality increases with board size, predicting a direct association between board size and earnings quality (Peasnell et al., 2005; Xie, Davidson, & Dadalt, 2003). The board financial expert is expected to mitigate managerial opportunistic behaviour and improve the choice of accounting policies employed by the financial accountants and managers. The increase in board financial expertise is expected to improve the earning quality (García-Sánchez, Martínez-Ferrero, & García-Meca, 2017). Lastly, a board meeting is a medium used in taking several strategic decisions, such as supervision, ratification, monitoring, and oversight function; hence, studies by Chen and Zhang (2012); Vafeas (1999) and Xie et al. (2003) show that board meetings positively influence earnings quality. Conversely, Ahmed (2007) and Daghsni, Mighri, Karim, and Mbarek (2016) assume that a board meeting is just a necessary ritual as it does not significantly influence board decisions; hence, we predict a positive or no significant relationship between a board meeting and earning quality.

Our model includes control variables such as audit size, firm size, and leverage. The audit type (AT) is measured as an attributable variable of one when the firm is audited by the Big Four (namely, Klynveld Peat Marwick Goerdele (KPMG), Deloitte, PricewaterhouseCoopers (PwC), and Ernst & Young (EY)) and zero otherwise. The listed firms are expected to perform a mandatory statutory audit to increase investors' confidence in the financial statements. Several studies (e.g., (Ogujiofor, Anichebe, & Ozuomba, 2017; Oladipupo & Monye-Emina, 2016)) have shown that audit type improves earnings quality and are of the view that large audit firms promote high financial reporting quality and invariably high earning quality. Conversely, studies by Choi, Kim, and Zang (2010); Kinney Jr and Libby (2002) and Libby, Rennekamp, and Seybert (2015) claim that economic bonding and client bargaining may compromise auditors' independence. Hence, based on those mentioned above, we posited a bi-directional association between audit type and earnings quality.

The study measures firm size by the natural logarithms of total assets consistent with the studies (Fan, Jiang, Zhang, & Zhou, 2019; Gavious et al., 2012). Finally, highly geared companies engage in earning management to achieve company targets. Hence, the study expects an inverse association between leverage and earnings quality in tandem (Ali, Noor, Khurshid, & Mahmood, 2015; Fan et al., 2019).

Hence, the gender diversity-earning quality relationship for the study is further expanded as follows:

$$EBT.LLP_{it} = \beta_0 + \beta_1 CMWOB_{it} + \beta_2 CMWOAC_{it} + \beta_3 BI_{it} + \beta_4 BFE_{it} + \beta_5 BS_{it} + \beta_6 BM_{it} + \beta_7 A.T_{it} + \beta_8 FS_{it} + \beta_9 LEV_{it} + e_{it} \quad (5)$$

The model views gender diversity from the critical mass perspective consistent with studies García-Meca et al. (2022); Jouber (2022) and Rahman and Sah (2022) that take cognisance of the critical mass threshold. Our model differs from studies by Sanad, Shiwakoti, and Al-Sartawi (2022) and Zalata et al. (2022) by considering the critical mass threshold of the audit committee. Also, our study differs from other previous Nigerian Studies in gender-related studies by measuring earnings quality from an informative and opportunistic perspective. Finally, the study is the first to apply critical mass theory to gender-related studies in Nigeria.

Table 1 presents the definition of variables used in Equation 1-5.

Table 1. Definition of variables used in the Equation 1-5.

Variable name	Codes	Definition
Earning quality	EBT.LLP	is the joint effect of future performance and accounting choices
The critical mass of women on board	CMWOB	Expressed as a dichotomous variable of one, if the female involvement in the board is at least 30% or three members, zero otherwise
The critical mass of women in the audit committee	CMWOAC	The study accords one if women in audit committee are at least 30% or zero; otherwise.
Board independence	BI.	Size of non-executive board member
Board financial expertise	BFE	Expressed as board members size that holds a professional/ Academic qualification in an accounting/ Finance-related field
Board size	BS.	The totality of the members of the board, irrespective of their gender
Board meeting	BM.	Expressed as the frequency of board meetings in an accounting year
Audit type	AT	A binary variable of a value of one if assurance services are carried out by the big four, and zero otherwise
Firm size	FS.	Expressed as the national logarithm of the Deposit Money Banks' total assets
Leverage	Lev	Expressed as the monetary value of equity scaled down by the value of total assets

5. Result and Interpretation

5.1. Descriptive Statistic

The study represents gender diversity using the Critical Mass of Women on the Board (CMWOB) and the Critical Mass of Women on the Audit Committee (CMWOAC). Table 2 shows that an average of 29 percent of the DMBs from 2011-2022 have at least 30 percent of the entire board being female. The low female representation, measured by the critical mass theory, could result from the CBNAct requiring voluntary compliance of 30 percent of women's involvement in board decisions in some years within the period covered. The DMBs' female board members are less volatile, with a standard deviation value of 0.29. However, Table 2 shows that 27% of the DMBs from 2011-2022 had at least 30% of their audit committee members who were female, with a standard deviation of 0.45.

The Table shows that the DMB board size comprises an average of 15 members. Also, there is an average of 4.33 independent board members. The board financial expertise statistics show that the DMBs have, on average, two members knowledgeable in finance; this may positively affect earnings quality. Also, the board meets approximately six times, with a median of six. The board meeting average indicates that the board frequently deliberates on strategic issues.

Furthermore, Table 2 indicates that the DMBs patronise an oligopolistic audit market dominated by the Big Four. From the Table, the Audit Type (AT) has a mean of 0.95; this statistic indicates that 95% of the DMBs engage the Big Four for assurance service. The patronage of this type of auditor may likely lead to improved earnings quality because the Big Four has better technical know-how, technical support, and skilled personnel to undertake the audit engagement.

Table 2. Descriptive statistics.

	Mean	Median	Maximum	Minimum	Std. dev.	Skewness	Observations
EBTLLP	1.49	1.00	6.00	-1.29	1.72	1.11	121
CMWOB	0.29	0.00	1.00	0.00	0.29	2.85	132
CMWOAC	0.27	0.00	1.00	0.00	0.45	1.02	132
BI	4.33	2.00	27.00	1.00	5.53	2.52	132
BFE	2.31	0.50	11.00	1.00	3.02	1.17	132
BS	15.40	14.00	47.00	8.00	7.56	2.11	132
BM	5.74	6.00	16.00	3.00	2.66	0.29	132
AT	0.95	1.00	1.00	0.00	0.21	-4.36	132
FS	19.68	20.70	29.60	0.00	4.84	-0.84	132
LEV	1.64	0.87	90.40	-1.00	8.54	10.33	132

5.2. Correlation Analysis

The pairwise association between the variables of interest in Equation 5 shows that the regressors in the model are less likely to have multicollinearity issues. Table 3 shows the results of the correlation analysis. The evidence of less likelihood of multicollinearity is evidenced by the highest pairwise association among these explanatory variables, which exist between BS and the CMWOAC with a correlation of 0.450 and ($P<0.005$). The pairwise association between BS and CMWOAC indicates that the board size is positively related to board independence; the statistics specify that the DMBs with a relatively large board size have a greater possibility of having more independent board members. Other salient information in the pairwise correlation association is worthy of discussion. Among these are the pairwise associations between women in the audit committee (CMWOAC) and board independence (BI), board financial expertise (BFE), and board size, with a pairwise correlation and probability value of ($r= 0.364$, $p<0.05$) and ($r=0.202$, $p<0.05$), respectively. The statistics indicate that women's greater participation in the boardroom (at least 30 percent of the members) may be influenced by the board size and independent members.

Table 3. Correlation matrix.

Probability	EBTLLP	CMWOB	CMWOAC	BI	BFE	BS	BM	AT	FS	LEV
EBTLLP	1.000									
	0.000									
CMWOB	0.702	1.000								
	0.000	0.000								
CMWOAC	-0.092	-0.123	1.000							
	0.339	0.202	0.000							
BI	-0.101	-0.059	0.364	1.000						
	0.295	0.541	0.000	0.000						
BFE	0.126	-0.211	0.202	-0.239	1.000					
	0.191	0.027	0.035	0.012	0.000					
BS	0.128	-0.004	0.450	0.091	-0.088	1.000				
	0.184	0.965	0.000	0.000	0.362	0.000				
BM	0.323	0.199	-0.140	0.032	-0.094	0.123	1.000			

Probability	EBTLLP	CMWOB	CMWOAC	BI	BFE	BS	BM	AT	FS	LEV
	0.001	0.037	0.146	0.739	0.330	0.202	0.000			
AT	0.037	0.069	-0.062	0.108	0.095	0.174	0.226	1.000		
	0.701	0.474	0.518	0.261	0.324	0.069	0.018	0.000		
FS	0.029	0.110	-0.131	-0.159	0.107	-0.236	-0.009	0.053	1.000	
	0.762	0.251	0.171	0.098	0.265	0.013	0.922	0.586	0.000	
LEV	0.032	-0.029	0.159	-0.019	0.249	0.000	-0.058	0.029	-0.058	1.000
	0.742	0.767	0.096	0.840	0.009	0.999	0.547	0.761	0.548	0.000

6. Result and Discussion of Findings

We conduct an endogeneity test using the Hausman specification test to ascertain the extent of the endogeneity problem of the regressors in Equation 5. The result shows no endogeneity problem (not shown for brevity reasons); hence, we employ the Ordinary Least Squares (OLS)method to estimate the model. The study winzorises the data collected at a 1 and 99 percent confidence level to control for outliers. Furthermore, we perform a robustness check using the variable substitution. The study estimates Equation 5 using different proxies for women. The outputs of the regressions are shown in I, II, III, and IV. In regression I, a threshold of 30 percent is used to proxy women on board and audit committees. Regression II's output measures women's critical mass with a threshold of three females. Regression III shows the output of women's participation using the proportion of women on the board and audit committee. Last, we measure the participation of women on the board and audit committee using the token threshold of 15 percent shown in regression IV. The result of the F statistics (F=24.5, P< 0.01) in regression I indicates that the model is fit, while the adjusted R square of 0.66 depicts that a change in EQ is 66 per cent accounted for by the regressors in the model. The result indicates that the critical mass of women proxyed by CMWOB and CMWOA is significantly related to EQ. Also, BI, BFE, BS, BM, and AT control variables are statistically associated with EQ.

The critical mass of women in the board and audit committee positively improves the earnings quality, as evidenced by statistics of (coeff= 4.26, P< 0.05) and (coeff = 0.60, P< 0.05), respectively, as shown in Table 4 (regression I). Our result is consistent with (e.g., (Dobija et al., 2022; Gavious et al., 2012; Schwartz-Ziv, 2017)). Our results support the business case of at least 30 percent of female board members and audit committee members. Also, our study supports the view that women exercise due process and care, ethics, and painstakingness in their oversight function.

Furthermore, Table 4 (regression I) indicates that control variables of board characteristics such as board independence, board financial expertise, board size, and board meetings are positively and significantly related to earnings quality. The board independence with statistics of (coeff=0.08, P< 0.05)indicates a higher likelihood of improvement in earnings quality, consistent with Gavious et al. (2012), Khalil and Ozkan (2016), Peasnell et al. (2005) and Pham et al. (2019). Our study also shows a positive association between board financial expertise and earning quality,as evidenced by (coeff =0.18 P< 0.05). Our result supports the view that financial experts improve Nigerian DMBs' earnings quality, consistent with studies (Ebaid, 2013; García-Sánchez et al., 2017). Table 4 also depicts that board size is positively related to earnings quality, supported by a statistic of (coeff=0.10, P< 0.05). The board size and earnings quality association show that a large board size improves earnings quality due to diversity in skills, experience, and academic qualification likely possessed by the large board size; this result aligns with studies (Xie et al., 2003). The result of Table 4, indicates that board meetings are positively associated with earnings quality (coeff =0.11, P< 0.05), indicating that there is constructive deliberation of management potential decisions in the board; the result aligns with (Chen & Zhang, 2012; Vafeas, 1999; Xie et al., 2003).

Finally, the Table shows that auditors' reputation positively increases earnings quality, as shown in the audit type and earnings quality statistics (coeff=1.12 P< 0.05). The result aligns with the postulation that larger audit firms decrease earnings management. The result is in tandem with studies (Ogujiofor et al., 2017; Oladipupo & Monye-Emina, 2016).

To ascertain the consistency of our result, we substitute the critical mass threshold of 30 percent with three other surrogates of gender diversity, and these include a threshold of three female members (the result shown in regression II), the proportion of women demonstrated in regression III, and a token threshold of 15 percent as shown in regression IV. As depicted in regression II, the threshold of at least three is positively associated with earnings quality with a statistic of (t = 3.74, p < 0.05). Also, the result of the token threshold is consistent with our result, with a value of (t = 3.19 p < 0.05). However, the critical mass of three female members, or 15 percent, is not statistically associated with earnings quality. Our result indicates that earnings quality is improving in Nigeria's banking sector, with a critical mass threshold of 30 percent.

Table 4. Regression analysis.

DEP	EBTLLP							
Regression	I		II		I II		IV	
IND	CRITI≥30%		CRITI I≥ 3		Proportion		Tokenism I≥ 15%	
Variable	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
CMWOB	4.26	12.00	-	-	-	-	-	-
CMWOAC	0.60	2.28	-	-	-	-	-	-
CMWOB2	-	-	3.74	17.61	-	-	-	-
CMWOAC2	-	-	-0.05	-0.25	-	-	-	-
PRWOB	-	-	-	-	15.09	27.40	-	-
PRWOAC	-	-	-	-	0.28	1.40	-	-
TWOB	-	-	-	-	-	-	3.19	6.07
TWOAC	-	-	-	-	-	-	0.23	1.05
BI	0.08	2.70	0.01	0.21	0.03	2.35	0.04	1.61
BFE	0.18	4.78	0.14	4.93	0.02	2.34	0.09	1.48
BS	0.10	4.25	0.02	1.29	0.05	4.37	0.06	3.89
BM	0.11	2.93	0.07	2.20	0.00	0.38	0.08	4.28
AT	1.12	2.28	-0.24	-0.64	0.38	2.32	0.47	2.01
FS	-0.01	-0.59	0.02	1.19	0.00	0.38	0.01	0.57
LEV	0.00	0.10	0.00	0.49	0.00	2.11	0.01	1.61
C	0.36	0.55	-0.46	-0.92	-0.16	-1.29	-0.41	-0.82
R-sq		0.68		0.81		0.98		0.75
Adj- r-sq		0.66		0.80		0.98		0.73
F-stat		24.50		48.76		476.08		34.06
Prob		0.00		0.000		0.00		0.00

7. Conclusion

The study examines the relationships between female members of the board, audit committees, and earnings quality. We achieved the objective by developing two hypotheses. The first hypothesis is the critical mass of women on board and earnings quality. The second hypothesis is the critical mass of women on audit committees and earnings quality. The study uses the method that García-Meca and García-Sánchez (2018) developed to measure earnings quality. Kanagaretnam et al. (2014) align with the Beneish (2001) model because the model covers the informative and opportunistic perceptions of earnings management. Also, the females on board are measured using the critical mass of women of at least 30 percent, 15 percent, or three members being female, and zero otherwise. The gender diversity measurement is also in limited use by gender diversity-related studies in developing economies. Secondary data are collected from the Nigerian Exchange Group Plc, Factbook, and audited financial report of the 11 DMB on the study variables of interest repeatedly from 2011-2022. The study employs the panel OLS to estimate the gender diversity-earnings quality model. Our study contributed to the existing literature by being among the few that examine gender diversity and earnings quality, considering the two aspects of earnings management in determining earnings quality and the critical mass theory application to gender-related studies in Nigeria. The study shows that the involvement of at least 30 percent of the board and audit committee is positively associated with earnings quality. The study reveals that when the participation of women attains the critical mass, the under-represented sex category influences the management decision significantly, especially in terms of earnings quality. We bolster this fact by using other surrogates of gender diversity, such as the proportion of women, the token of women on the board, and the tokenof women in the audit committee, and the result is consistent. The study concludes that when women's board memberships attain the critical mass threshold, earnings quality improves significantly.

Our study is limited to the financial sector, which may not be an accurate representation of listed companies in Nigeria. The study suggests that future studies should apply the critical mass theory to gender-related studies in the non-financial sector, especially in Nigeria. Also, other methods of earning quality should be considered.

The study recommends that the institutional framework in Nigeria should mandate the 30 percent threshold for women's participation in board politics as a matter of urgency. The essence of the gender policy is not only a business case but also for social justice, as the Nigerian population is evenly distributed among the two sex categories. There should be severe penalties for defaulters to encourage policy implementation.

References

Abad, D., Lucas-Pérez, M. E., Minguez-Vera, A., & Yagüe, J. (2017). Does gender diversity on corporate boards reduce information asymmetry in equity markets? *Business Research Quarterly*, *20*(3), 192–205. https://doi.org/10.1016/j.brq.2017.04.001

Abdelghany, K. E. (2005). Measuring the quality of earnings. *Managerial Auditing Journal*, *20*(9), 1001–1015. https://doi.org/10.1108/02686900510625334

Åberg, C., Bankewitz, M., & Knockaer, M. (2019). Service tasks of board of directors: A literature review and research agenda in an era of new governance practices. *European Management Journal*, *37*(5), 648-663. https://doi.org/10.1016/j.emj.2019.04.006

Adams, R., & Funk, P. (2012). Beyond the glass ceiling: Does gender matter? *Management Science*, *58*(2), 219–235. https://doi.org/10.1287/mnsc.1110.1452

Ahmed, E. (2007). Earnings management and board activity: An additional evidence. *Review of Accounting and Finance*, *6*(1), 42-58. https://doi.org/10.1108/14757700710725458

Akinkoye, E. Y., & Fapohunda, M. (2019). Female directorship and financial performance of listed firms in Nigeria: Empirical evidence. *International Journal of Accounting and Management*, *3*(2), 59-71.

Ali, U., Noor, A., Khurshid, M. K., & Mahmood, A. (2015). Impact of firm size on earnings management: A study of textile sector of Pakistan. *European Journal of Business and Management*, *7*(28), 47-56. https://dx.doi.org/10.2139/ssrn.2698317

Baixauli-Soler, J. S., Belda-Ruiz, M., & Sanchez-Marin, G. (2015). Executive stock options, gender diversity in the top management team, and firm risk taking. *Journal of Business Research*, *68*, 451-463. https://doi.org/10.1016/j.jbusres.2014.06.003

Ball, R., & Shivakumar, L. (2005). Earnings quality in UK private firms: Comparative loss recognition timeliness. *Journal of Accounting and Economics*, *39*(1), 83–128. https://doi.org/10.1016/j.jacceco.2004.04.001

Beatty, A., & Liao, S. (2015). Financial accounting in the banking industry: A review of the empirical literature. *Journal of Accounting Economics*, *58*(2-3), 339-383. https://doi.org/10.1016/j.jacceco.2014.08.009

Bellovary, J. L., Giacomino, D. E., & Akers, M. D. (2005). Earnings quality: It's time to measure and report. *CPA Journal*, *75*(11), 32–37.

Beneish, M. D. (2001). Earnings management: A perspective. *Managerial Finance*, *27*(12), 3–17. https://doi.org/10.1108/03074350110767411

Brennan, N. M. (2021). Connecting earnings management to the real world: What happens in the black box of the boardroom? *The British Accounting Review*, *53*(6), 101036. https://doi.org/10.1016/j.bar.2021.101036

Brown, P. R. (1999). Earnings management: A subtle (and troublesome) twist to earnings quality. *Journal of Financial Statement Analysis*, *4*(2), 61–64.

Burgess, Z., & Tharenou, P. (2002). Women board directors: Characteristics of the few. *Journal of Business Ethics*, *37*, 39-49. https://doi.org/10.1023/A:1014726001155

Byron, K., & Post, C. (2016). Women on boards of directors and corporate social performance: A meta-analysis. *Corporate Governance: An International Review*, *24*(4), 428-442. https://doi.org/10.1111/corg.12165

Carter, D. A., Simkins, B. J., & Simpson, W. G. (2003). Corporate governance, board diversity and firm value. *Financial Review*, *38*(1), 33–53. https://doi.org/10.1111/1540-6288.00034

Catalyst. (2013). *Catalyst census: Fortune 500 women board directors.* Retrieved from https://www.catalyst.org/research/2013-catalyst-census-fortune-500-women-board-directors/

Central Bank of Nigeria. (2012). *Annual report.* Abuja: Central Bank of Nigeria.

Chen, J. J., & Zhang, H. (2012). The impact of the corporate governance code on earnings management - evidence from Chinese listed companies. *European Financial Management*, *20*(3), 596-632. https://doi.org/10.1111/j.1468-036X.2012.00648.x

Chen, X., Cheng, Q., & Wang, X. (2015). Does increased board independence reduce earnings management? Evidence from recent regulatory reforms. *Review of Accounting Studies*, *20*(2), 899-933. https://doi.org/10.1007/s11142-015-9316-0

Choi, J. H., Kim, J. B., & Zang, Y. (2010). Do abnormally high audit fees impair audit quality? *Auditing: A Journal of Practice and Theory*, *29*(2), 73-97. https://doi.org/10.2308/aud.2010.29.2.115

Cumming, D., Leung, T. Y., & Rui, O. (2015). Gender diversity and securities fraud. *Academy of Management Journal*, *58*(5), 1572-1593. https://doi.org/10.5465/amj.2013.0750

Daghsni, O., Mighri, Z., Karim, B. H., & Mbarek. (2016). Earnings management and board characteristics: Evidence from French listed firms. *Arabian Journal of Business and Management Review*, *6*(5), 1-9.

De Masi, S., Słomka-Gołębiowska, A., Becagli, C., & Paci, A. (2021). Toward sustainable corporate behavior: The effect of the critical mass of female directors on environmental, social, and governance disclosure. *Business Strategy and the Environment*, *30*(4), 1865-1878. https://doi.org/10.1002/bse.2721

Dobija, D., Hryckiewicz, A., Zaman, M., & Puławska, K. (2022). Critical mass and voice: Board gender diversity and financial reporting quality. *European Management Journal*, *40*(1), 29-44. https://doi.org/10.1016/j.emj.2021.02.005

Ebaid, E.-S. I. (2013). Corporate governance and investors' perceptions of earnings quality: Egyptian perspective corporate governance. *The International Journal of Business in Society*, *13*(3), 261-273. https://doi.org/10.1108/CG-02-2011-0011

Elzahar, H., Zalata, A., & Hassaan, M. (2022). Attributes of female directors and accruals-based earnings management. *Cogent Business & Management*, *9*(1), 2139212. https://doi.org/10.1080/23311975.2022.2139212

Enofe, A., Iyafekhe, C., & Eniola, J. (2017). Board ethnicity, gender diversity and earnings management: Evidence from quoted firms in Nigeria. *International Journal of Economics, Commerce and Management*, *6*, 78-90. https://doi.org/10.1108/jaee-10-2022-0312

Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The Journal of Law and Economics*, *26*(2), 301-325. https://doi.org/10.1086/467037

Fan, Y., Jiang, Y., Zhang, X., & Zhou, Y. (2019). Women on boards and bank earnings management: From zero to hero. *Journal of Banking & Finance*, *107*, 105607. https://doi.org/10.1016/j.jbankfin.2019.105607

Financial Reporting Council of Nigeria. (2011). *Financial reporting council of Nigeria.* Retrieved from https://frcnigeria.gov.ng/

Foster, M. H., Fernholm, C., & Brunnberg, S. (2023). Capacity strengths of Asian women in management positions. *Journal of Management World, 2023*(2), 79–88. https://doi.org/10.53935/jomw.v2023i2.243
García-Meca, E., García-Sánchez, I., & Martínez-Ferrero, J. (2015). Board diversity and its effects on bank performance: An international analysis. *Journal of Banking and Finance, 53*(1), 202-214. https://doi.org/10.1016/j.jbankfin.2014.12.002
García-Meca, E., & García-Sánchez, I. M. (2018). Does managerial ability influence the quality of financial reporting? *European Management Journal, 36*(4), 544–557. https://doi.org/10.1016/j.emj.2017.07.010
García-Meca, E., López-Iturriaga, F. J., & Santana-Martín, D. J. (2022). Board gender diversity and dividend payout: The critical mass and the family ties effect. *International Review of Financial Analysis, 79*(C), 101973. https://doi.org/10.1016/j.irfa.2021.101973
García-Sánchez, I. M., Martínez-Ferrero, J., & García-Meca, E. (2017). Gender diversity, financial expertise and its effects on accounting quality. *Management Decision, 55*(2), 347-382. https://doi.org/10.1108/MD-02-2016-0090
García-Sierra, J., & Sánchez Castillo, D. (2022). Women in management: Decision-making process under psychosocial pressing. *Journal of Management World, 2023*(3), 29–38. https://doi.org/10.53935/jomw.v2023i3.250
García Lara, J. M., García Osma, B., Mora, A., & Scapin, M. (2017). The monitoring role of female directors over accounting quality. *Journal of Corporate Finance, 45*(C), 651-668. https://doi.org/10.1016/j.jcorpfin.2017.05.016
Gavious, I., Segev, E., & Yosef, R. (2012). Female directors and earnings management in high-technology firms. *Pacific Accounting Review, 24*(1), 4–32. https://doi.org/10.1108/01140581211221533
Gbarato, L. M. (2020). Corporate board diversity and financial performance: The Nigerian Insurance sector's perspective. *Growth, 7*(1), 20-25. https://doi.org/10.20448/journal.511.2020.71.20.25
Ghosh, A., Marra, A., & Moon, D. (2010). Corporate boards, audit committees, and earnings management: Pre- and post-sox evidence. *Journal of Business Finance & Accounting, 37*(9/10), 1145–1176. https://doi.org/10.1111/j.1468-5957.2010.02218.x
Gul, F. A., Hutchinson, M., & Lai, K. M. (2013). Gender-diverse boards and properties of analyst earnings forecasts. *Accounting Horizons, 27*(3), 511-538. https://doi.org/10.2308/acch-50486
Gul, F. A., Srinidhi, B., & Ng, A. C. (2011). Does board gender diversity improve the informativeness of stock prices? *Journal of Accounting Economics, 51*(3), 314-338. https://doi.org/10.1016/j.jacceco.2011.01.005
Gull, A. A., Nekhili, M., Nagati, H., & Chtioui, T. (2018). Beyond gender diversity: How specific attributes of female directors affect earnings management. *The British Accounting Review, 50*(3), 255-274. https://doi.org/10.1016/j.bar.2017.09.001
Güner, A. B., Malmendier, U., & Tate, G. (2008). Financial expertise of directors. *Journal of Financial Economics, 88*(2), 323-354. https://doi.org/10.1016/j.jfineco.2007.05.009
Harris, O., Karl, J. B., & Lawrence, E. (2019). CEO compensation and earnings management: Does gender really matters? *Journal of Business Research, 98*, 1–14. https://doi.org/10.1016/j.jbusres.2019.01.013
Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons, 13*(4), 365–383. https://doi.org/10.2308/acch.1999.13.4.365
Inneh, E. G., Obokoh, L. O., & Busari , R. R. (2020). Executive compensation and earnings management of nigerian listed non-financial firms, international. *Journal of Economics and Finance Studies, 12*(2), 369-387.
International Finance Corporation. (2019). *Women on board in Nigeria.* Washington, DC: International Finance Corporation.
Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360. https://doi.org/10.1016/0304-405X(76)90026-X
Joecks, J., Pull, K., & Vetter, K. (2013). Gender diversity in the boardroom and firm performance: What exactly constitutes a "critical mass? *Journal of Business Ethics, 118*, 61–72. https://doi.org/10.1007/s10551-012-1553-6
Jouber, H. (2022). Women leaders and corporate social performance: Do critical mass, CEO managerial ability and corporate governance matter? *Management Decision, 60*(5), 1185-1217. https://doi.org/10.1108/MD-07-2020-0953
Kanagaretnam, K., Lim, C., & Lobo, G. J. (2014). Influence of national culture on accounting conservatism and risk-taking in the banking industry. *The Accounting Review, 89*(3), 1115-1149. https://doi.org/10.2308/accr-50682
Kanter, R. M. (1977). Some effects of proportions on group life: Skewed sex ratios and responses to token women. *American Journal of Sociology, 82*(5), 965-990. https://doi.org/10.1086/226425
Kao, E. H., Huang, H. C., Fung, H. G., & Liu, X. (2020). Co-opted directors, gender diversity, and crash risk: Evidence from China. *Rev Quant Financ Account, 55*, 461–500. https://doi.org/10.1007/s11156-019-00850-3
Khalil, M., & Ozkan, A. (2016). Board independence, audit quality and earnings management: Evidence from Egypt. *Journal of Emerging Market Finance, 15*(1), 84-118. https://doi.org/10.1177/0972652715623701
Khazanchi, D. (1995). Unethical behavior in information systems: The gender factor. *Journal of Business Ethics, 14*(9), 741–749. https://doi.org/10.1007/BF00872327
Kinney Jr, W. R., & Libby, R. (2002). Discussion of the relation between auditors' fees for nonaudit services and earnings management. *The Accounting Review, 77*(s-1), 107-114.
Kirsch, A. (2018). The gender composition of corporate boards: A review and research agenda. *Leadership Quarterly, 29*, 346–364. https://doi.org/10.1016/j.leaqua.2017.06.001
Kirschenheiter, M., & Melumad, N. (2002). Can "big bath" and earnings smoothing co-exist as equilibrium financial reporting strategies? *Journal of Accounting Research, 40*(3), 761–796. https://doi.org/10.1111/1475-679X.00070
Konrad, A. M., Kramer, V., & Erkut, S. (2008). Critical mass: The impact of three or more women on corporate boards. *Organisational Dynamics, 37*, 145-164. https://psycnet.apa.org/doi/10.1016/j.orgdyn.2008.02.005
Kramer, V. W., Konrad, A. M., Erkut, S., & Hooper, M. J. (2008). *Critical mass on corporate boards: Why three or more women enhance governance.* Boston, MA: Wellesley Centers for Women.
Krishnan, G. V., & Parsons, L. M. (2008). Getting to the bottom line: An exploration of gender and earnings quality. *Journal of Business Ethics, 78*, 65-76. https://doi.org/10.1007/s10551-006-9314-z

Leventis, S., Dimitropoulos, S., & Owusu-Ansa, S. (2013). Corporate governance and accounting conservatism: Evidence from the banking industry. *Corporate Governance an International Review*, *21*(3), 264-286. https://doi.org/10.1111/corg.12015

Levi, M., & Zhang, F. (2010). Deal or no deal: Hormones and the mergers and acquisitions game. *Management Science*, *56*(9), 1462-1483. https://doi.org/10.1287/mnsc.1100.1206

Libby, R., Rennekamp, K. M., & Seybert, N. (2015). Regulation and the interdependent roles of managers, auditors, and directors in earnings management and accounting choice. *Accounting Organisations and Society*, *47*, 25–42. https://doi.org/10.1016/j.aos.2015.09.003

Lin, J. W., & Hwang, M. I. (2010). Audit quality, corporate governance, and earnings management: A meta-analysis. *International Journal of Auditing*, *14*(1), 57–77. https://doi.org/10.1111/j.1099-1123.2009.00403.x

Lund, M. B. (2008). Gender differences in ethics judgment of marketing professionals in the United States. *Journal of Business Ethics*, *77*(4), 501–515. https://doi.org/10.1007/s10551-007-9362-z

Nerantzidis, M., Tzeremes, P., Koutoupis, A., & Pourgias, A. (2022). Exploring the black box: Board gender diversity and corporate social performance. *Finance Research Letters*, *48*, 102987. https://doi.org/10.1016/j.frl.2022.102987

Nguyen, T., Locke, S., & Reddy, K. (2015). Does boardroom gender diversity matter? Evidence from a transitional economy. *International Review of Economics & Finance*, *37*, 184-202. https://doi.org/10.1016/j.iref.2014.11.022

Nguyen, T. H. H., Ntim, C. G., & Malagila, J. K. (2020). Women on corporate boards and corporate financial and non-financial performance: A systematic literature review and future research agenda. *International Review of Financial Analysis*, *71*, 101554. https://doi.org/10.1016/j.irfa.2020.101554

Nuber, C., & Velte, P. (2021). Board gender diversity and carbon emissions: European evidence on curvilinear relationships and critical mass. *Business Strategy and the Environment*, *30*(4), 1958–1992. https://doi.org/10.1002/bse.2727

Ogujiofor, M. N., Anichebe, A. S., & Ozuomba, C. N. (2017). Audit quality, abnormal audit fee and auditor attributes. *International Journal of Management Excellence*, *8*(3), 973-984. https://doi.org/10.17722/ijme.v8i3.895

Oladipupo, A. O., & Monye-Emina, H. E. (2016). Do abnormal audit fees matter in Nigerian audit market. *International Journal of Business and Finance Management Research*, *4*(6), 64-73.

Peasnell, K. V., Pope, P. F., & Young, S. (2005). Board monitoring and earnings management: Do outside directors influence abnormal accruals? *Journal of Business Finance & Accounting*, *32*(7-8), 1311–1346. https://doi.org/10.1111/j.0306-686X.2005.00630.x

Pham, H. Y., Chung, R. Y., Roca, E., & Bao, B. H. (2019). Discretionary accruals: Signalling or earnings management in Australia? *Accounting and Finance*, *59*(2), 1383-1413. https://doi.org/10.1111/acfi.12275

Post, C., & Byron, K. (2015). Women on boards and firm financial performance: A meta-analysis. *Academy of Management Journal*, *58*, 1546-1571. https://doi.org/10.5465/amj.2013.0319

PWC. (2020). *Impact of women on Nigeria's economy*. Retrieved from https://www.pwc.com/ng/en/publications/impact-of-women-on-nigerias-economy.html

Rahman, A., & Sah, N. B. (2022). Female directors in play keep short-sellers away. *European Accounting Review*, 1-30. https://doi.org/10.1080/09638180.2022.2103012

Sanad, Z., Shiwakoti, R., & Al-Sartawi, A. (2022). Gender diversity on corporate boards and earnings management: A review. *Artificial Intelligence for Sustainable Finance and Sustainable Technology: Proceedings of ICGER 2021*, *1*, 340-351. https://doi.org/10.1007/978

Schwab, A., Werbel, J. D., Hofmann, H., & Henriques, P. L. (2016). Managerial gender diversity and firm performance: An integration of different theoretical perspectives. *Group & Organization Management*, *41*(1), 5-31. https://doi.org/10.1177/1059601115588641

Schwartz-Ziv, M. (2017). Gender and board activeness: The role of a critical mass. *Journal of Financial and Quantitative Analysis*, *52*(2), 751-780. https://doi.org/10.1017/S0022109017000059

Shleifer, A., & Vishny, R. W. (1989). Management entrenchment: The case of manager-specific investments. *Journal of Financial Economics*, *25*(1), 123-139. https://doi.org/10.1016/0304-405X(89)90099-8

Srinidhi, B., Gul, F. A., & Tsui, J. (2011). Female directors and earnings quality. *Contemporary Accounting Research*, *28*(5), 1610–1644. https://doi.org/10.1111/j.1911-3846.2011.01071.x

Strydom, M., Au Yong, H. H., & Rankin, M. (2016). A few good (wo) men? Gender diversity on Australian boards. *Australian Journal of Management*, *42*, 404-427. https://doi.org/10.1177/0312896216657579

Sun, J., Liu, G., & Lan, G. (2011). Does female directorship on independent audit committees constrain earnings management? *Journal of Business Ethics*, *99*(3), 369–382. https://doi.org/10.1007/s10551-010-0657-0

Tang, C. H., Lee, Y. H., Lee, M. C., & Huang, Y. L. (2020). CEO characteristics enhancing the impact of ceo overconfidence on firm value after mergers and acquisitions—a case study in China. *Rev Pac Basin Financ Mark Policies*, *23*(1), 2050003. https://doi.org/10.1142/S0219091520500034

Tate, K., & Arend, M. (2022). Critical mass claims and ideological divides among women in the us house of representatives. *American Politics Research*, *50*(4), 479-487. https://doi.org/10.1177/1532673X221077931

Terjesen, S., & Sealy , R. (2016). Board gender quotas: Exploring ethical tensions from a multi-theoretical perspective. *Business Ethics Quarterly*, *18*(2), 153–190. https://doi.org/10.1017/beq.2016.7

Toukabri, M., & Jilani, F. (2022). The power of critical mass to make a difference: Kow gender diversity in board affect US corporate carbon performance. *Society and Business Review*, *18*(4), 592-617. https://doi.org/10.1108/sbr-11-2021-0224

Tucker, J. W., & Zarowin, P. A. (2006). Does income smoothing improve earnings informativeness? . *The Accounting Review*, *81*(1), 251–270. https://doi.org/10.2308/accr.2006.81.1.251

Vafeas, N. (1999). Board meeting frequency and firm performance. *Journal of Financial Economics*, *53*(1), 113-142. https://doi.org/10.1016/s0304-405x(99)00018-5

Wicker, P., Feiler, S., & Breuer, C. (2022). Board gender diversity, critical masses, and organisational problems of non-profit sport clubs. *European Sport Management Quarterly*, *22*(2), 251-271. https://doi.org/10.1080/16184742.2020.1777453

Wiley, C., & Monllor-Tormos, M. (2018). Board gender diversity in the STEM&F sectors: The critical mass required to drive firm performance. *Journal of Leadership & Organizational Studies*, *25*(3), 290–308. https://doi.org/10.1177/1548051817750535

Xie, B., Davidson, W., & Dadalt, P. (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/10.1016/S0929-1199(02)00006-8

Yarram, S. R., & Adapa, S. (2021). Board gender diversity and corporate social responsibility: Is there a case for critical mass? *Journal of Cleaner Production*, *278*, 123319.

Zahra, S. A., & Pearce, J. A. (1989). Boards of directors and corporate financial performance: A review and integrative model. *Journal of Management*, *15*(2), 291-334. https://doi.org/10.1177/014920638901500208

Zalata, A. M., Ntim, C. G., Alsohagy, M. H., & Malagila, J. (2022). Gender diversity and earnings management: The case of female directors with financial background. *Review of Quantitative Finance and Accounting* *58*(1), 101-136. https://doi.org/10.1007/s11156-021-00991-4