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Female directorship and ethical corporate governance disclosure practices in highly patriarchal contexts

Geofry Areneke [a,b,*], Emmanuel Adegbite [c,d], Abongeh Tunyi [e], Tanveer Hussain [f]

[a] Ajman University, College of Business Administration, University Street, Al jerf 1 Ajman, United Arab Emirates
[b] Department of Accounting, Finance and Banking, Faculty of Business and Law, Manchester Metropolitan University, Oxford Road, Manchester, M15 6BH, UK
[c] Accounting Division Nottingham University Business School University of Nottingham Jubilee Campus, Nottingham, NG8 1BB, UK
[d] James Cook University, Singapore
[e] Sheffield University Management School, University of Sheffield, Conduit Rd, Sheffield S10 1FL, UK
[f] Essex Business School, University of Essex, Southend Campus, UK

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ABSTRACT

We examine whether and to what extent female directors impact on ethical CG disclosure practices in a highly patriarchal sub-Saharan African country—Nigeria. Using hand-collected data for 108 listed firms from 2011 to 2017 (756 firm-year observations) and employing a system GMM model to control for endogeneity, we show that female directorship is positively and significantly associated with ethical CG disclosures. Our evidence suggests that, even within patriarchal societies where women face negative preconceptions and stereotypes about their leadership capabilities, firms with female directors disclose higher ethical CG practices than firms without such representation. Furthermore, the effectiveness of female directors in influencing ethical CG practices is positively enhanced by foreign directors and institutional shareholders but weakened in larger boardrooms. We also evidence that in firm-level configuration of CG bundle, female directorship is a substitute mechanism for leadership duality, larger boards, non-executive and foreign directorship.

1. Introduction

This paper examines the extent to which female directors improve voluntary disclosure of ethical corporate governance (hereinafter CG) practices and the moderating role of other internal and external CG structures in a less discussed but highly patriarchal context. Ethical CG disclosure practices have gained significant prominence in the CG codes of good practices across developed and developing countries (Aguilera & Jackson, 2010; Areneke, Khlif et al., 2022; Pope & Lim, 2019). Specifically, they help to reduce information asymmetry between shareholders and managers (Pope & Lim, 2019), by providing guidelines for the latter on how to promote ethical management through practices that foster shareholder value and the interest of other stakeholders (Aguilera & Jackson, 2010; Areneke, Khlif et al., 2022). The key interest in ethical CG disclosures includes issues of accountability, transparency, risk management, corporate social responsibility (CSR) and the responsibility of boards and managers of firms.

Similar to ethical CG disclosures, the presence of women in corporate boardrooms has attracted considerable interest (Adams, 2016; García & Herrero, 2021; Tunyi et al., 2023; Zalata & Abdelfattah, 2021). There has been a global surge in the demand to increase the number of female directors on the board for morality, representativeness and economic reasons (Labelle et al., 2015; Nadeem et al., 2017). Proponents of the ethical, equity and fairness perspective suggest that the presence of female directors on boards signals responsible business practices and legitimacy in the face of changing national and global gender population trends (Tunyi et al., 2023). Also, from a firm performance argument, the presence of female directors on corporate boards is essential for plurality of ideas, innovation, and risk appraisal, which promotes shareholder value (Boulouta, 2013). Thus, the increasing attention on female directorship from academics, business leaders, practitioners and policymakers in the last decade has seen some countries implement laws to encourage the recruitment of female directors (Cumming et al., 2015). However, a laissez-faire approach has been maintained in other countries allowing the forces of demand and supply of directors to determine the level of female representation on boards (Labelle et al., 2015).

Research on the economic impact of female directors may be unsettled, with some studies finding a positive link (e.g. Campbell & Mínguez-Vera, 2008; Reguera-Alvarado et al., 2017) and others reporting either a negative relationship (e.g. Matsa & Miller, 2013) or no

* Corresponding author at: Ajman University, College of Business Administration, University Street, Al jerf 1 Ajman, United Arab Emirates.
E-mail addresses: G.Areneke@mmu.ac.uk, G.Areneke@ajman.ac.ae (G. Areneke), Emmanuel.Adegbite@nottingham.ac.uk (E. Adegbite), A.Tunyi@sheffield.ac.uk (A. Tunyi), th22205@essex.ac.uk (T. Hussain).

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relationship (e.g. Gallego-Álvarez et al., 2010; Liu et al., 2020). However, a crucial theoretical, empirical and policy question that has been ignored is whether an association exists between female directorship and ethical CG disclosure. More so, the equivocal results may result from not testing how other CG mechanisms may improve or lessen the impact of female directors on corporate outcomes. Specifically, while our understanding of how female directors impact corporate practices is evolving, there is a dearth of research on how external and internal governance mechanisms may moderate this relationship.

We contend that the small number of women in boardrooms can result in the marginalisation of their roles and responsibilities. Therefore, it is not unreasonable to expect that other CG mechanisms may hinder or enhance the benefits of appointing female directors. We argue that, due to their limited representation in boardrooms, the effectiveness of female directors' impact on corporate practices may depend on other supporting or limiting CG mechanisms. We address these research gaps with two non-trivial but unexplored research questions; (i) Do female directors impact on ethical CG disclosure? (ii) Does the internationalisation of boardrooms (foreign directors), boardroom size and institutional ownership moderate this relationship?

We address these questions by drawing from risk averseness, ethicality and diversity perspectives to study the direct impact of female directors on ethical CG disclosure and the moderating role of governance factors. Specifically, using hand-collected data for 108 firms listed on the Nigerian Stock Exchange between 2011–2017 (inclusive) i.e., 756 firm-year observations, we examine two main issues; (1) if the presence of female directorship improves ethical CG disclosures, as required by the Nigerian Securities and Exchange Commission's (SEC) code of good practices in CG and (2) whether foreign directors, board size and institutional shareholders moderate this nexus.

The relatively unexplored context in the CG and gender diversity debate – Nigeria – offers a useful empirical context for our study. On the one hand, the weak institutional environment for CG in Nigeria breeds a culture of unethical practices, poor disclosure and public–private corruption (Areneke, Adegbite et al., 2022). On the other hand, and similar to most African countries, Nigeria – Africa's largest market for goods and services – is culturally patriarchal, with men conventionally dominating political and business spheres. Moreover, women in this context face many barriers arising from institutionally enshrined stereotypes and behavioural/cultural biases in relation to their leadership styles, capabilities and assertiveness (Ayadi et al., 2015).

The Nigerian government and relevant stakeholders in the corporate sector have developed several initiatives to address gender discrimination, especially in the boardroom. These include the 2009 National Gender Policy, the 2011 SEC CG Code and the 2006 Central Bank of Nigeria (CBN) CG Code. Despite these initiatives, there is still a perception that the limited appointment of female directors to boardrooms and executive positions is driven by affirmative action and not based on their leadership capabilities/contribution to the firm's value creation nor the firm's own ethical behaviour (Ayadi et al., 2015).
Besides, the weak enforcement of corporate laws and self-regulatory initiatives in the Nigerian institutional context render impractical several initiatives around gender equality and ethical business (Adegbite, 2015; Areneke & Kimani, 2019). Overall, Nigeria provides a unique context to investigate how women can promote voluntary ethical CG disclosure in challenging institutional settings.

Our results show that female directors are instrumental in enhancing ethical CG disclosure. In addition, we find that foreign directors and institutional shareholders enhance female directors' ability to improve on ethical CG practices while larger boardrooms limit their impact. We discuss this in-depth later in our study.

The remainder of the paper is structured as follows. Section 2 discusses related theories, the extant literature and our hypotheses. Section 3 discusses the methodology. Section 4 presents the results, and Section 5 presents concluding remarks and our contributions.

2. Theoretical framework and hypothesis

Recent reviews of gender diversity studies (see for example Post & Byron, 2015; Tunyi et al., 2023) suggest that the majority of existing studies are limited to a single theoretic angle and therefore have called for pluralism of perspectives for future research. We are sympathetic to these calls and consequently adopt a multi-theoretic angle drawing on ethicality, risk aversion and diversity perspectives. Our review of extant work begins by discussing the context of ethical CG disclosure.

2.1. Ethical CG disclosures

The current business environment enables firms to establish an ethical culture in CG disclosure beyond just legal or voluntary obligations. As Arjoon (2005) and Areneke, Khlif et al. (2022) posit, some failures in corporations can be attributed not just to failures in compliance or disclosures but, in addition, fundamental failures to do the "ethical thing". From an ethical point of view, firms should seek to disclose CG practices not to the letter of the law but to the spirit in which ethical CG practices are instituted. Simmons (2004) adds that CG entails firms being managed ethically in order to gain legitimacy through ethical decision-making.

Rossouw (2005) argues that the drive for ethical CG disclosure practices is due to a growing recognition that these disclosures can enhance firms' economic and long-term success. Similarly, others posit that an increase in ethical CG disclosures improves firms' ethical reputation and responsibility which, in turn, attracts both foreign and local investors (Simmons, 2004). In developing economies and in Africa particularly, ethical CG disclosures are a medium to alleviate corrupt business practices (Rossouw, 2005). Collett and Hrasky (2005) identified some benefits of ethical CG disclosures from a shareholder perspective. These include; minimising information asymmetry and agency cost, increasing firm valuation in periods of poor performance, and mitigating legal actions against managers for inadequate disclosures. More so, other studies suggest that increased ethical CG disclosures will improve legitimacy and provide access to environmental resources (Areneke, Adegbite et al., 2022; Rossouw, 2005).

Despite the highlighted advantages and proliferation of ethical CG disclosure practices, very few organisations fully adopt the required ethical CG guidelines and there seem to be a wide variation on disclosure (Areneke, Khlif et al., 2022; Cuomo et al., 2016). Overall, little is known in relation to the firm-level drivers of ethical CG disclosures, including the relationship between certain board characteristics. For example, notwithstanding the increasing demands and necessity to improve ethical CG practices and female board representation, there is a dearth of research on female directors' role in determining and improving ethical CG practices in firms.

2.2. Ethicality and gender

From an ethicality perspective, the presence of female directors in boardrooms enhances firms' ability to increase ethical CG disclosure practices, as women are more ethically sensitive to disclosures compared to their male counterparts (Cumming et al., 2015; Tunyi et al., 2023). The different sensitivity to ethical standards between female and male directors is partly explained by socialisation theory. The theory suggests that women and men learn different values, gender roles, and concerns which form their feminine and masculine personality traits from childhood (Cumming et al., 2015; Dawson, 1997). Cumming et al. (2015) maintains that women are driven by the need to achieve communal goals, which emphasises the development of interpersonal relationships, whereas men are guided by agentic goals with their focus more on the pursuit of personal achievements. As a result, women are more socially driven to embody societal values than men, which makes them react ethically when faced with dilemmas (Peterson et al., 2010). Similarly, women are argued to be less aggressive, more nurturing

and less likely to harm others than men (Cumming et al., 2015). In addition, women are noted to be more liberal in their views and tend to have stronger feelings towards ethical issues relating to disclosures and reporting on required practices (Cumming et al., 2015).

We, therefore, expect that these sensitivities, morality and ethical differences between female and male directors will be reflected in firms' disclosure of ethical CG practices. In addition, female directors have been noted to identify ethical disclosure concerns and bring them to the attention of the board (Cumming et al., 2015; Erhardt et al., 2003). As such, we expect boardrooms with female directors to engage in higher disclosure of CG practices than those without female representation.

2.3. Risk aversion and gender

We argue that the second mechanism through which female directors can affect ethical CG disclosures relates to overconfidence and risk aversion. Physiologically, differences in testosterone levels between women and men may partly explain differences in appetite for risk-taking (Sapienza et al., 2009). Sapienza et al. (2009) contend that higher testosterone levels in men compared to women can lead to gender differences in cognitive behaviours in risky decision-making. Byrnes et al. (1999) reviewed 150 studies on risk-taking behaviour and concluded that; women, on average take less risk than men. Similarly, from a socio-cultural perspective, children are born and pressured into behaving according to culturally assigned gender roles, resulting in men taking more risk than women (Mavin et al., 2014). In addition, some scholars (e.g Garbarino & Strahilevitz, 2004; Tunyi et al., 2023) posit that socio-political factors such as power and status, which favours men, also account for increased risk tolerance for men compared to women.

We argue that ethical CG disclosure reduces a firm's risk exposure and reduces agency cost and information asymmetry. Therefore, due to the risk averseness traits of female directors, their firms are likely to engage in ethical CG practices to avoid economic, political and social costs.

2.4. Diversity and gender

The upper echelons theory argues that gender differences in board composition may increase the ability of firms to adopt good CG practices. Advocates of gender diversity suggest it brings diverse perspectives in boardroom decision-making (Erhardt et al., 2003; Mullins, 2018). Gender diversity has been reported to enhance effective monitoring, control and protection of shareholders' interest (Campbell & Mínguez-Vera, 2008; Erhardt et al., 2003). More so, female directorship broadens experience, ideas, interests, perspectives and creativity in boardrooms (Adams, 2016; Hillman et al., 2007). Furthermore, board gender diversity has been postulated to affect trust significantly, which may give rise to cognitive conflict amongst board members (Adams, 2016; Erhardt et al., 2003). We postulate that such conflicts are likely to increase the scrutiny of ethical CG standards by board members, which, ceteris paribus, will improve CG disclosures.

2.5. Hypothesis development

2.5.1. Female directorship and ethical CG disclosure

As earlier noted, prior research has reported mixed results on the financial performance impact of female directors. In a similar vein, recent studies have investigated the impact of female directorship on CSR disclosures and reported positive associations (e.g. Nadeem et al., 2017) as well as negative associations (e.g. Giannarakis et al., 2014). We argue that these mixed results are attributed to insufficient control of endogeneity (Kirsch, 2018) (for brevity, we do not address these endogeneity concerns here as the detailed discussion is provided in the method and analysis sections). Our focus is to examine the association between female directorship and ethical CG disclosure in order to address the restricted understanding relating to the channels through which firms improve their CG disclosure practices.

From the foregoing and ethicality theorising, we expect that gender differences in board members will, perhaps, be revealed in firms' disclosure of CG practices. Furthermore, from a risk aversion perspective, disclosure of firm-level ethical CG practices reduces risk exposure and satisfies shareholders' aim of reducing information asymmetry and agency cost. Due to the awareness of the need to reduce information asymmetry and promote ethical business practices, female directors are likely to ensure that firms act in the best interest of shareholders and other stakeholders by improving ethical CG disclosures. In addition, drawing from a diversity standpoint, we theorise that cognitive conflicts due to gender diversity are likely to increase the scrutiny of ethical CG standards in boardrooms, which will improve ethical CG disclosure.

We note that there is an interrelationship between women's ethical sensitivity and risk aversion behaviour. Specifically, differences in ethical and risk aversion behaviour may be a characteristic inherent in diverse boardrooms. Therefore, because women are more ethically sensitive than their male counterparts, in addition to achieving gender representativeness and diversity objectives, shareholders will place more trust on female directors to provide transparent information on CG practices. Furthermore, due to their ability to recognise and respond to ethical issues, female directors will, perhaps, engage in ethical decision-making and ensure that firms provide transparent information on CG practices. In addition, female directors will broaden experience, ideas, innovation, interests, perspective and creativity in boardrooms, which enhances the likelihood of increased CG disclosures. We, therefore, propose our main hypothesis as follows;

Hypothesis 1 (H1)**.** Ceteris paribus, there is a significant positive association between female directorship and ethical CG disclosure practices

2.5.2. Moderating role of foreign directors

Recent CG research has shown that foreign board members (FBMs) are agents of spillover of international CG practices (for detailed discussions, see Areneke, Adegbite et al., 2022; Miletkov et al., 2017), especially in countries with weak governance institutions. Nonetheless, a dearth of studies have examined whether foreign directors can work with other boardroom diversity mechanisms to improve CG practices. We address this lacuna by arguing that FBMs can moderate the impact of female directorship on ethical CG disclosure.

We contend that FBMs are less likely to engage in unethical practices than local directors. Therefore, they are more likely to support and collaborate with female directors in adopting and improving ethical CG practices. Furthermore, their absence from the home country of the firm and their exposure to international CG practices will heighten their preference for the appointment of female directors. This can lead to cohesion between FBMs and female directors in addressing and monitoring issues which improve the adoption of ethical CG practices. More so, FBMs are less likely to be patriarchal especially if they originate from countries with strong advocacy (e.g. Spain, Canada, USA and South Africa) for female representation and ethical management of firms. Hence, due to the tendency to improve ethical CG practices through spillover from abroad, FBMs are likely to collaborate with female directors to improve the disclosure of ethical CG practices. We, therefore, hypothesise that;

Hypothesis 2 (H2)**.** Ceteris paribus, foreign directors positively moderate (strengthen) the impact of female directors on ethical CG disclosure practices.

2.5.3. Moderating role of board size

Prior research examines how board size affects the appointment of female directors (e.g. De Cabo et al., 2012) and quality of CG disclosure practices (e.g. Ahmed et al., 2006) as isolated and separate issues. Consequently, no study so far has examined how the size of the

board can influence female directors' effect on CG practices. To address this, we examine whether board size moderates the impact of female directors on ethical CG disclosure practices.

On the one hand, larger board sizes may lead to better monitoring and appointment of female directors. Specifically, larger boards may signal a commitment to achieving a more gender-diverse boardroom to improve decision-making and supervisory oversight (De Cabo et al., 2012), enabling female directors to be appointed to enhance CG practices. In contrast, larger boards may lead to free-riding behaviour and CEO control as it becomes ineffective and difficult for the board chairman to coordinate (Adams, 2016). This may lead to poor monitoring and the inability of female directors to improve ethical CG disclosure practices. Hence, smaller boards may increase cohesiveness, effective discussions and critical decision-making. This enables female directors to influence ethical CG practices compared to larger boards. Furthermore, it is, perhaps, easier for female directors to utilise their experience, ideas, interests, perspective and creativity in boardrooms to influence ethical CG practices in a smaller compared to a larger boardrooms. Therefore, large boardrooms may limit (weaken) the ability of female directors to impact on ethical CG practices. Drawing on the foregoing, we hypothesise that,

Hypothesis 3 (H3)**.** Ceteris paribus, the size of the board negatively moderate (weakens) the impact of female directors on ethical CG disclosure practices.

2.5.4. Moderating role of institutional shareholders

Block ownership reinforces the monitoring and control of managerial decision-making (Areneke, Adegbite et al., 2022). Consequently, large institutional stockholders are active investors who are mostly involved in managing their stakes and are active and outspoken monitors of top management (Areneke, Khlif et al., 2022). Hence, it is unsurprising that one of the drivers of female representation in boardrooms in the last few decades is institutional shareholders (Adams, 2016; Marquardt & Wiedman, 2016). A few prior studies have also reported the role of institutional investors in appointing women in boardrooms (Marquardt & Wiedman, 2016). For example, Marquardt and Wiedman (2016) show that institutional investors provide the highest support for proposals that increase gender diversity while individual investors provide the lowest. However, no study has examined how these types of investors can reinforce (moderate) the impact of female directors on corporate practices. We address this lacuna.

We contend that because of institutional investors' activeness in monitoring the decision-making of the firm, they are likely to support the appointment of female directors in order to improve corporate practices, including CG disclosure. More so, due to the incentive to reduce information asymmetry through disclosure, they will place more trust and support to female directors in improving CG practices. Furthermore, because female directors are noted to be more capable of recognising ethical issues (Cumming et al., 2015; Tunyi et al., 2023) and responding to them, institutional investors are likely to provide monitoring assistance to them in improving ethical CG practices. Finally, institutional investors have more at stake in corporate entities and are likely to be driven by financial prospects. Female directors can enhance these prospects as they are sensitive to issues of ethical reporting that reduces the likelihood of the firm incurring economic, political and social cost due to poor disclosure of CG practices. Hence, we hypothesise as follows,

Hypothesis 4 (H4)**.** Ceteris paribus, institutional shareholding positively moderate the impact of female directors on ethical CG disclosure practices.

Drawing from the foregoing, Fig. 1 captures our conceptualisation of the effect of female directors on ethical CG disclosure practices and the moderating role of other CG factors. Specifically, female directors directly (positively) impact ethical CG practices (Hypothesis 1) and this impact is enhanced by foreign directors and institutional shareholders (Hypotheses 2 and 4) but weakened in large boardrooms (Hypothesis 3).

3. Data & sample

Our study is based on listed firms in Nigeria. Due to the unavailability of country-level corporate governance regulation data for firms in most databases (e.g. Compusat, DataStream, Orbis & CRSP), especially for those in developing countries, we manually collect the values for the independent and dependent variables from the annual reports of firms obtained from their websites and Nigeria Stock Exchange fillings. Data for some control variables were collected from DataStream. Out of the 188 listed firms in the Nigeria Stock Exchange (NSX) as at 31/12/2017, we collected data for a sample of 108 listed firms covering the period 2011–2017 inclusive. To be included in the study, a firm must have complete data (annual reports) for the seven-year period. Therefore, firms without annual reports covering the sample period were excluded from the study.

However, to ensure representativeness, our quota sampling method ensured a mixture of large and small firms, which increases generalisability of our findings and reduces sampling bias. Specifically, to address the possibility of sampling bias, we use a battery of tests to check whether our sample is representative of the population of listed firms in the NSX. We start by comparing the number of firms in our study with the total population of listed firms in the NSX. Our sampled firms represent approximately 57% of the total number of listed firms in the NSX. Second, we conduct a Kruskal Wallis Test which showed an Asymptotic significance of 0.35, suggesting an insignificant difference between our sample population across industry groups compared to the number of listed firms and their industry classification. Furthermore, we also compare the market capitalisation of the sampled firms to the overall market capitalisation of the NSX. The results suggest our sample covers approximately 60% of the NSX market capitalisation as at 31/12/2017. Finally, we inspect the preliminary descriptive statistics across all variables for variability and inclusiveness of both small and large firms.[1]

The 2011–2017 period was chosen because the SEC 2011 CG code (and its gender diversity requirements) was implemented before this period. In addition, the seven-year period meets the minimum requirements for dynamic panel analysis using system GMM (Flannery & Hankins, 2013). We include financial firms because they constitute approximately 30% of the listed firms on the NSX. More so, we compare firm-level individualities between financial and non-financial firms, and there are no statistically significant differences.

3.1. Variables

3.1.1. Dependent variable

The dependent variable is the Nigeria Ethical CG Index (NECGI). It is a composition of 75 CG provisions required by the SEC for listed firms to comply with as stated in the 2011 code.[2] The code has 61 provisions aimed at improving the management of firms to improve shareholders' value and 14 affirmative action/stakeholder inclusive requirements,

[1] Particularly, we check the minimum, maximum, 25th and 75th percentiles values across variables and there was wide variability suggesting our sample is representative of large and small firms. For example, the total asset ranges from a minimum of 17.54 billion Naira (approximately $40.09 million) to a maximum of 1.81 trillion Naira (approximately $4.16 billion).

[2] It is a revision of the SEC 2003 code (fashioned alongside the UK 1992 Cadbury and South Africa 1994 King I governance codes) which emphasised a shareholder-oriented approach to CG. However, it moves beyond a shareholder-centric orientation to an affirmative action & an inclusive stakeholder governance framework. The code is based on a comply or explain principle.

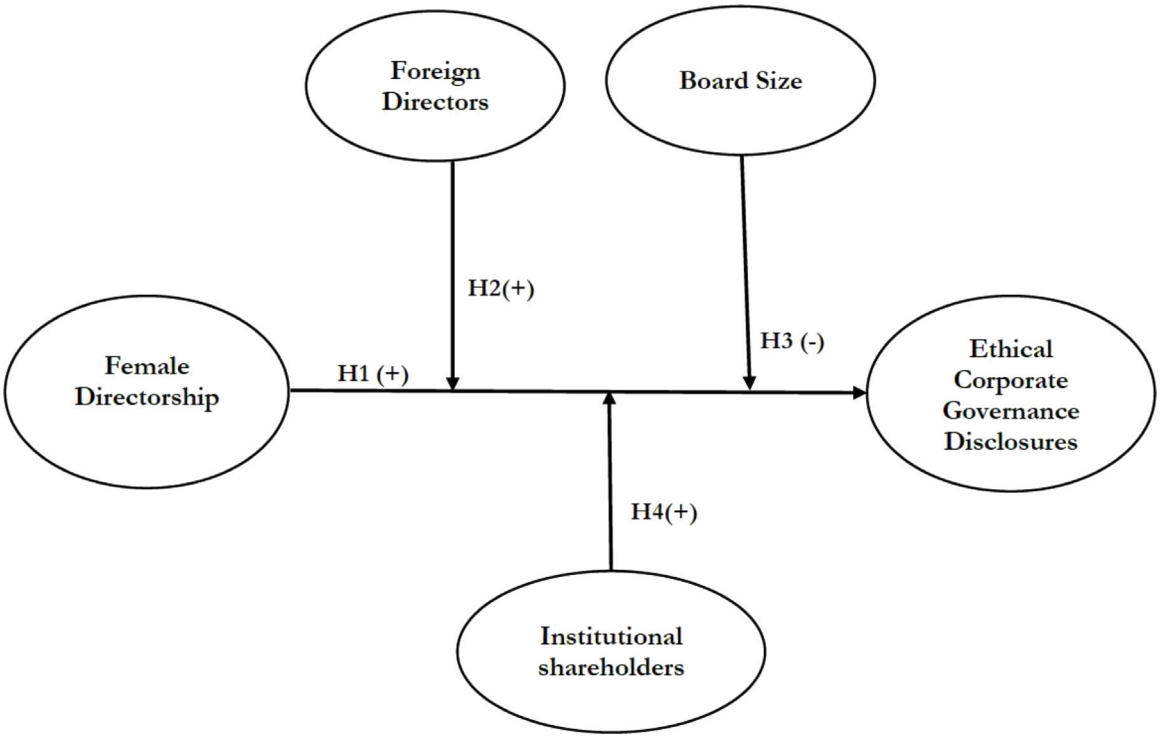

Fig. 1. Female directors and ethical CG disclosure conceptualisation.

which promote ethical practices in relation to non-equity stakeholders. Consistent with prior research on CG disclosure practices (e.g Areneke & Kimani, 2019; Black et al., 2006), we measure ethical governance disclosures by developing an index. To ensure validity and consistency in developing the index, the authors blind-recorded a selected number of firms to compare consistency. It involved reading each annual report (a total of 756 annual reports) and awarding a score of '1' if a firm discloses the implementation of each of the 75 CG provisions, otherwise, zero ('0'). Consequently, a firm's total ethical disclosure score for the year is a continuous variable ranging from a maximum of 75 (100%) indicating full disclosure and a minimum of zero (0%) indicating no disclosure to SEC 2011 code.[3]

3.1.2. Independent and moderating variables

Our independent variable is female directorship which is measured in two ways. The first measure is the ratio of female directors to the total number of directors on the board (GD) expressed in percentage terms. The second proxy is a dummy variable (GDi) which takes the value of "1" if a firm has at least one female director on its board, and a value of "0", otherwise.

For the moderating variables, we measure foreign directorship (FBM) as the percentage of non-native directors to the total number of directors on the board. Board size is measured as the natural log of the total number of directors (BSZ). Finally, institutional shareholding (ISH) is measured as the percentage of shares held by mutual funds, banks and or insurance companies.

3.1.3. Control variables

We controlled for several firm-level variables to avoid omitted variable bias, which may lead to spurious associations. First, CG studies have shown an association between CG disclosure practices and firm financial performance (e.g. Ntim et al., 2012). As a result, we control for financial performance using Return on Asset (ROA). Similarly, we control for firm size as it has been reported (e.g. Areneke & Kimani, 2019; Matsane et al., 2022) to affect CG disclosure practice. We use log of total assets (TA), sales growth (SG) and capital expenditure (CAPEX) as proxies for firm size. Furthermore, other board characteristics have been shown as determinants of ethical CG disclosures practices (e.g. Tunyi et al., 2023). Consequently, board-level individualities are controlled, including CEO duality (DUAL) and the percentage of non-executive directors (NED). We control for audit firm size (AFS), which has been reported to affect the quality of annual reports[4] (El Ghoul et al., 2016). Firms' openness and international exposure can subject them to ethical governance in other countries. For example, prior research has shown secondary listing in countries with strong ethical dimensions in governance improves ethical governance practices (Areneke & Kimani, 2019). We, therefore, control for dual listing (DL). Finally, we controlled for industry and firm year effects. The measurement and definition of all variables are shown on Table A.1 in the Appendix.

3.2. Estimation methods

3.2.1. Fixed effect and generalised least square (GLS)

The gender diversity literature has reported mixed findings regarding its association with performance and CSR reporting. These differences and inconsistencies in findings have been attributed to the failure to control for simultaneity between dependent and independent (reverse causation) variables; dynamic endogeneity, and unobserved firm-level idiosyncrasies (Kirsch, 2018; Nadeem et al., 2017). To address this issue, we use a battery of estimation methods, including fixed effects as stated in Eq. (1) below;

$$NECGI_{it} = \beta_0 + \beta_1 \beta GD_{it} + \beta_2 ROA_{it} + \beta_3 CEOD_{it} + \beta_4 NED_{it} + \beta_5 BSZ_{it}$$

[3] For example, a firm that complies with 60 out of the 75 CG guidelines in a year has a score of 80% for that year.

[4] Specifically, large and international audit firms (such as Deloitte Touche Tohmatsu, PricewaterhouseCoopers (PwC), KPMG and Ernst and Young (EY)), scrutinise annual reports better than smaller audit firms which improve the quality of CG disclosures.

$$+ \beta_6 FBM_{it} + \beta_7 GEAR_{it} + \beta_8 DL_{it} + \beta_9 ISH_{it} + \beta_{10} TA_{it} + \beta_{11} CAPEX_{it} + \beta_{12} SG_{it} + \beta_{13} AFS_{it} + \upsilon_j + \upsilon_t + \epsilon_{it} \quad (1)$$

Eq. (1) shows the Nigeria ethical CG disclosure index ($NECGI$) is determined by gender diversity (GD and GDi), return on asset (ROA), CEO duality ($CEOD$), percentage of NEDs (NED), board size (BSZ), foreign directorship (FBM), capital structure ($GEAR$), dual listing (DL), institutional shareholding (ISH), log of total asset (TA), capital expenditure ($CAPEX$), sales growth (SG), audit firm size (AFS) & firm-year fixed effects (t).

3.2.2. Three stage-least square (3SLS).

We observe that, the use of single-equation models as specified in Eq. (1) may generate spurious coefficients due to interdependence between variables (Flannery & Hankins, 2013). Specifically, there may exist possible interdependence between female directorship and ethical governance disclosure. For example, the need to improve ethical governance disclosure may coerce firms to recruit female directors. As such, we derive a system of two simultaneous equations (3SLS) that allows interdependencies between female directorship and ethical governance disclosure. In the first stage, we developed the following equations with female directorship (GD) as dependent variables in Eq. (2). More so, this equation captures the determinants of female directorship. In the second stage, female directorship is instrumented in Eq. (1):

$$GD_{it} = \beta_0 + \beta_1 NECGI_{it} + \beta_2 FDI_{it} + \beta_3 ROA_{it} + \beta_4 CEOD_{it} + \beta_5 NED_{it} + \beta_6 BSZ_{it} + \beta_7 FBM_{it} + \beta_8 GEAR_{it} + \beta_9 DL_{it} + \beta_{10} ISH_{it} + \beta_{11} TA_{it} + \beta_{12} CAPEX_{it} + \beta_{13} SG_{it} + \beta_{14} AFS_{it} + \upsilon_j + \upsilon_t + \epsilon_{it} \quad (2)$$

In order to perform 3SLS estimation, we need a variable (instrument) that correlates highly with female directorship but is uncorrelated with the error term (in Eq. (1)) and can only impact the dependent variable ($NECGI$) through the independent variable. According to resource dependency theory, interlock with other boards has a significant impact on directors' ability to influence board processes and decision-making (Cai et al., 2014). We, therefore, use the average female director interlock as an instrument of female directorship. We contend that when women seat on boards of other organisations, they bring their experience from these links to influence board decision-making. Hence, female directors' affiliations with other boardrooms can have a direct effect on their ability to perform their board roles. This suggests female director interlock (FDI as in Eq. (2)) can only affect ethical CG disclosure through female directorship, which theoretically should be a good instrument for the latter. In un-tabulated results (we followed the method of Larcker and Rusticus (2010) and also the Hansen–Sargan test of overidentification), we find that female director interlock meets both the sufficiency and validity conditions as an instrument for female directorship.

3.2.3. System generalised methods of moments (GMM)

We state our system GMM equations as follows;

$$NECGI_{it} = \beta_0 + \beta_1 NECGI_{it-1} + \beta_2 GD_{it} + \beta_3 CONTROLS_{it} + \epsilon_{it} \quad (3)$$

$$\Delta NECGI_{it} = \beta_0 + \beta_1 \Delta NECGI_{it-1} + \beta_2 \Delta GD_{it} + \beta_3 \Delta CONTROLS_{it} + \Delta\epsilon_{it} \quad (4)$$

where *t-1* is a one-year lag operator; ΔNECGI is an $(N - I) \times 1$ trajectory/vector of the differenced ethical CG disclosure index variable across N observations and I firms. The β_1 is a 1×1 scalar of lag time coefficient for differenced CG disclosure index, $NECGI$, across N observations and I firms. ΔGD is the $(N - I) \times H$ matrix of the H differenced gender diversity variable (GD and GDi), across N observations and I firms. The β_2 is an $H \times 1$ vector of the coefficients for the H differenced gender diversity variable. The $CONTROLS$ are an $(N - I) \times Q$ matrix of the Q differenced firm-level fourteen (14) control variables (listed in Eq. (1)) across N observations for I firms. The β_3 is a $Q \times 1$ vector of coefficients for the Q differenced firm level control variables. Lastly, ϵ_{it} is an $(N - I) \times 1$ vector of the error terms across N observations for I firms.

The first system of equations (GMM deference equation i.e., Eq. (3)) explores the effect of lag ethical CG disclosure index (NECGI) variable in addition to the independent variable (gender diversity) plus the 14 control variables. The system GMM equations (Eq. (4)) examines the impact of lag ethical governance disclosure index changes in addition to changes in gender diversity as well as changes in control variables regressed on changes in ethical governance disclosure index.

The inclusion of a one-year lag in our estimation is to ensure that past values of variables do not affect the values of other variables in subsequent years. In addition, previous studies (e.g. Ryan & Haslam, 2005) have evidenced the glass cliff phenomenon as firms appoint female directors to boardrooms after a period of poor performance (see Ryan & Haslam, 2005, 2007, for detailed discussion of glass cliff phenomenon). Hence, the one-year lag of ethical governance disclosure on the right-hand side of our GMM estimation ensures that the impact of our independent variable (gender diversity) on ethical governance disclosure is not due to the previous year's (autocorrelation) disclosure value (dynamic endogeneity) which may have impacted on current years gender diversity value. Beyond more than one-year lag, the impact of the past values of the dependent variable on its future values reduces.[5]

Table 1
Descriptive statistics.

Variables	Mean (1)	SD (2)	Min (3)	p25 (4)	p50 (5)	p75 (6)
NICGI	75.52	17.25	16.00	65.33	77.33	89.33
SHNECGI	77.02	16.30	18.03	67.21	78.69	90.16
SKNECGI	69.43	25.88	0.00	50.00	71.43	92.86
GD	15.31	11.67	0.00	6.00	14.28	25.00
GDi	0.77	0.42	0.00	1.00	1.00	1.00
ROA	3.62	17.16	−99.42	0.91	3.33	7.54
CEOD	0.98	0.15	0.00	1.00	1.00	1.00
NED	69.90	14.71	0.00	58.33	70.00	81.82
BSZ	9.69	3.03	0.00	7.00	9.00	11.00
FBM	17.64	19.46	0.00	0.00	10.00	33.33
GEAR	41.80	39.50	−0.25	0.33	30.11	83.62
DL	0.19	0.39	0.00	0.00	0.00	0.00
ISH	54.13	22.89	0.00	37.22	57.79	70.15
TA	4.64	0.99	1.24	3.99	4.54	5.16
CAPEX	0.05	0.12	−1.43	0.01	0.02	0.07
SG	7.47	26.39	−120.43	−1.04	7.45	19.34
AFS	0.69	0.47	0.00	0.00	1.00	1.00

4. Results

4.1. Summary statistics

Descriptive results are reported in Table 1. Several interesting results emerge in the descriptive. First, there is wide variation in ethical CG disclosure amongst firms. For example, NECGI has a standard deviation of 17.25% with average disclosure of 75.52%. Second, there are considerable differences in gender diversity across firms. On average, approximately 77% firms have at least a female director. Though the SEC 2011 CG code requires women to be part of boards, it does not stipulate any definite number or proportion. However, compared with

[5] For example, we examined whether two and three-year lags of NECGI have a significant impact on future NECGI values. Our results showed the impact significantly diminishes when more than one-year lag is included in the model. More so, the choice of one-year lag is consistent with prior research (e.g. Flannery & Hankins, 2013; Tunyi et al., 2023) which have implemented system GMM with short periods.

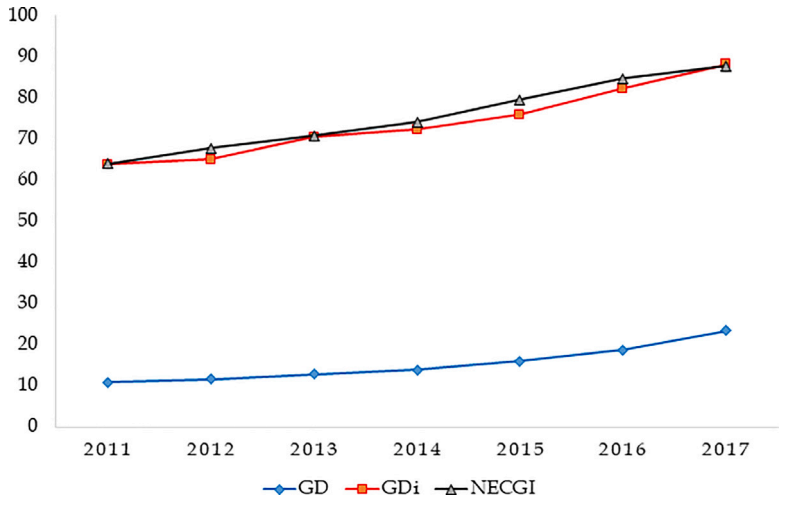

Fig. 2. Female directorship and ethical CG disclosure across years.

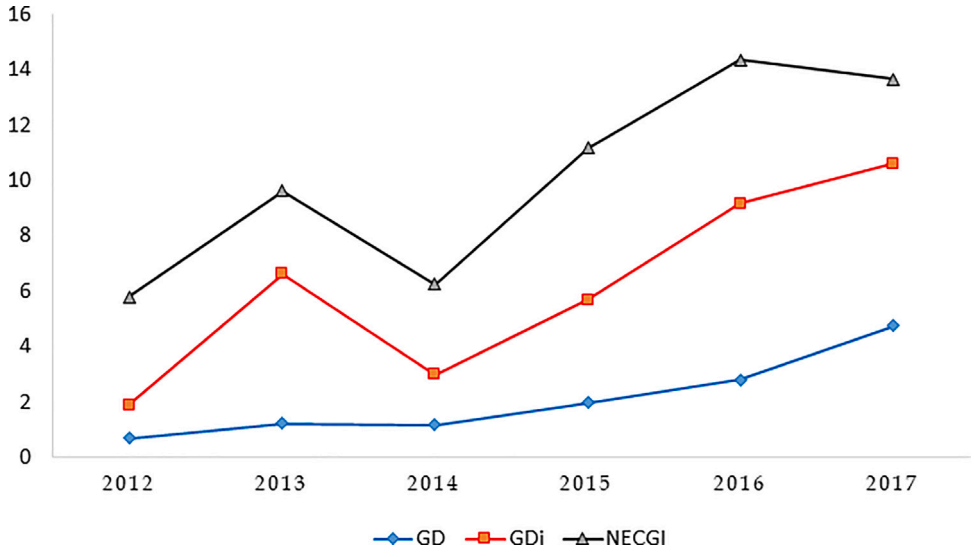

Fig. 3. Year-on-year changes in female directorship and ethical CG disclosure.

prior studies in Nigeria, the percentage of female directors on boards has increased to 15.31%, suggesting that firms are responding to calls to increase female representation in boardrooms. For example, female representation was reported at 4.6% (Ujunwa et al., 2012, p.612) and 10.74% (Akpan & Amran, 2014, p.84) respectively. This shows some level of growth in female representation, but compared to the female population composition as at 2017, 49.5% of Nigerian population is female (Nigeria, 2018, p.2). This implies that women are still underrepresented in Nigerian corporate boards. In addition, while 77% of firms have a minimum of one female director, approximately 23% have zero female representation.

We further compared how female directorship has evolved during our sample period (tabulated results not reported for brevity but shown in Figs. 2 & 3). The year-on-year descriptive shows an increasing trend of female board membership across firms. Specifically, both the percentage of female directorship and the number of firms with at least one female director have increased over time. The highest proportional increase in female directorship occurred during the 2015–2016 period by approximately 5% (4.76) on average. More so, within the seven-year period, the pooled percentage of female directorship has more than doubled with an increase of approximately 12.6% from 2011 (10.87%) to 2017 (23.46%) with an approximate absolute percentage of 54%. Similarly, the number of firms with at least one female director has increased by approximately 24% on average from 2011 to 2017, with absolute percentage of 27%. This increase suggests that the aforementioned gender policy initiatives are improving female representation in the Nigerian corporate sector. Furthermore, this increasing trend suggests firms in this context are embracing global gender representation concerns.

Similarly, ethical CG disclosure has also increased over time with the highest increase between 2014 and 2015 of approximately 5.48%. In addition, as shown in Fig. 2, both gender diversity and ethical governance disclosure have similar dynamic trends confirming they are both improving. The improvement in CG practices suggests that

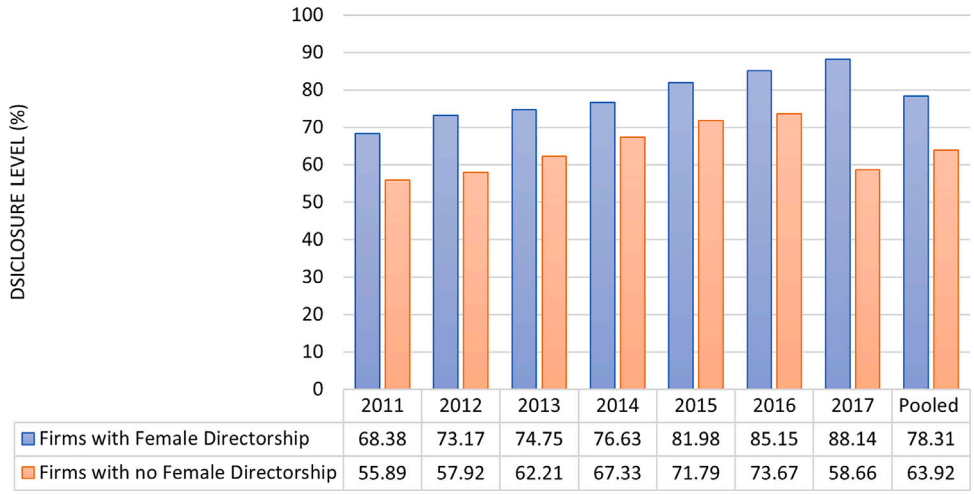

Fig. 4. Ethical CG disclosure for firms with female and none-female directorship.

firms in Nigeria are embracing good CG practices as necessary to signal transparency in the way they are managed which is likely to attract foreign investors.[6] Thus, the need for continuous inflow of capital from developed to developing countries in the last few decades (Areneke, Adegbite et al., 2022; Cao et al., 2017) may have driven the increase in CG disclosure as firms use their CG practices as a signal to attract foreign investors who will likely want to invest in firms with good CG practices to reduce the uncertainty they face when investing in countries with weak enforcement of laws (e.g. Nigeria).

Furthermore, because some industries have encouraged female board representation by instituting quotas within industry-level governance codes especially within the finance sector (e.g. the CBN 2006 governance code), we compared female directorship across industries (tabulated results not reported for brevity). Interestingly, the natural resource/oil and gas sector has a comparably similar percentage of female directors with the finance sector (17.20% and 17.73% respectively) and firms with at least one female director (84% and 84.98% respectively). Despite the central bank's target of 30% female board representation within the financial sector by 2014, female directors occupy approximately 18% of board seats in this sector and 15% of these firms do not have a female director. Except for information technology & real estate, all other industries have above 10% female directorships. However, 50% of firms across each industry group have at least a female director.

Fig. 4 shows comparative ethical CG disclosure descriptive statistics between firms with at least one female director and those with zero. Across the sample period, firms with female directorship comply with approximately 78.31% of the SEC 2011 CG requirements on average compared to 63.92% for firms with no-female representation with a statistically significant ($p < 0.001$) mean difference of 14.39%. This implies that ethical CG disclosure is highest in firms with female directorship than in those without female directorship.

4.2. Correlation analyses

Bivariate correlation matrix was used to test multi-collinearity (not reported for brevity but available upon request). The magnitude, direction and signs of the coefficients suggest the absence of serious concerns. More so, the bivariate correlations are generally low to moderate suggesting that multi-collinearity is not a problem.[7]

Table 2
First stage of 3SLS : Predictors of female directorship.

Independent variables	GD (1)	GDI (dummy) (2)
NECGI	0.85***	0.02***
	(0.00)	(0.01)
Female Director Interlock (FDI)	0.02***	0.00**
	(0.00)	(0.03)
Return on Asset (ROA)	0.01*	0.00**
	(0.10)	(0.05)
CEO Duality (CEOD)	−13.02***	−0.37**
	(0.00)	(0.02)
Percentage of Non-Executive Directors (NED)	−0.19***	−0.00**
	(0.00)	(0.02)
Board Size (BSZ)	−1.39***	−0.01
	(0.00)	(0.24)
Foreign Directorship (FBM)	−0.21***	−0.00***
	(0.00)	(0.00)
Capital Structure (GEAR)	0.01	0.00
	(0.34)	(0.68)
Dual Listing (DL)	0.84*	0.02*
	(0.10)	(0.09)
Institutional Shareholding (ISH)	−0.02	−0.00
	(0.38)	(0.78)
Total Asset (TA)	−1.37**	−0.04
	(0.04)	(0.19)
Capital Expenditure (CAPEX)	0.61	−0.01
	(0.82)	(0.89)
Sales Growth (SG)	0.04***	0.00*
	(0.00)	(0.08)
Audit Firm Size (AFS)	−4.53***	−0.06
Constant	11.69***	0.44***
	(0.00)	(0.00)
F-value	1598.16***	52.01***
chi2	758.60***	290.77***
R-squared	0.20	0.23
Observations	756	756
Industry FE	Yes	Yes
Year FE	Yes	Yes

Robust p-values are presented in parenthesis.
*Indicate statistical significance at the 10% level.
**Indicate statistical significance at the 5% level.
***Indicate statistical significance at the 1% level.

[6] Specifically, as recent literature have shown (e.g Areneke, Adegbite et al., 2022; Cao et al., 2017) emerging market firms are seeking to attract foreign capital, especially from investors from developed economies who expect transparent CG practices as a prerequisite for their investment.

[7] However, for robustness, we examined the studentized residuals, Cooks disturbance statistics, Variance Inflation Factor (VIF), and tolerance statistics (not reported for brevity reasons) and did not find any non-normal statistics.

Table 3
Female directorship impact on ethical CG Disclosure (NECGI).

Variables	System GMM		3SLS		FE		GLS	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
L.NECGI	0.55***	0.57***						
	(0.00)	(0.00)						
GD (%)	0.25***		0.50***		0.68***		0.65***	
	(0.00)		(0.00)		(0.00)		(0.00)	
GDi (Dummy)		1.91*		23.59***		12.61***		12.90***
		(0.06)		(0.00)		(0.00)		(0.00)
ROA	−0.08***	−0.05**	0.03	−0.01	0.02	0.02	0.02	0.02
	(0.00)	(0.02)	(0.18)	(0.86)	(0.52)	(0.36)	(0.50)	(0.39)
CEOD	1.79	2.48	16.93***	19.36***	5.86	7.005	13.91***	16.56***
	(0.81)	(0.74)	(0.00)	(0.00)	(0.30)	(0.24)	(0.00)	(0.00)
NED	0.11***	0.04	0.14***	0.11***	0.06*	−0.01	0.06	−0.01
	(0.01)	(0.20)	(0.00)	(0.00)	(0.09)	(0.81)	(0.33)	(0.86)
BSZ	0.21	0.22	1.50***	1.05***	0.79***	0.62**	1.10***	0.79**
	(0.47)	(0.41)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.02)
FBM	−0.00	−0.04	0.20***	0.21***	0.19***	0.29***	0.18***	0.23***
	(0.97)	(0.49)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
GEAR	−0.02	−0.02	−0.02**	−0.02*	−0.01	−0.01	−0.01	−0.02
	(0.47)	(0.34)	(0.04)	(0.07)	(0.68)	(0.56)	(0.83)	(0.62)
DL	2.92	3.79	1.10	1.58	−0.99	−1.68	−1.31	−0.62
	(0.47)	(0.49)	(0.40)	(0.27)	(0.90)	(0.84)	(0.58)	(0.80)
ISH	0.05	0.06	−0.02	−0.02	0.14***	0.12***	0.07	0.05
	(0.19)	(0.10)	(0.35)	(0.31)	(0.00)	(0.00)	(0.13)	(0.29)
TA	−3.00*	−1.58	1.91***	2.34***	0.10	3.70***	1.85	3.90**
	(0.05)	(0.21)	(0.01)	(0.00)	(0.94)	(0.01)	(0.34)	(0.02)
CAPEX	0.00	0.00	0.00	0.00	0.17	−0.56	−0.56	−0.68
	(0.39)	(0.45)	(0.74)	(0.63)	(0.96)	(0.86)	(0.86)	(0.82)
SG	−0.04*	−0.03*	−0.04***	−0.05***	−0.06***	−0.06***	−0.06***	−0.07***
	(0.05)	(0.06)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)
AFS	5.81	9.459**	7.622***	6.534***	12.396***	14.585***	8.35***	8.29***
	(0.27)	(0.03)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	22.36**	29.46**	−0.45	−6.01	29.12***	16.27*	16.96*	13.68
	(0.00)	(0.01)	(0.91)	(0.22)	(0.00)	(0.07)	(0.07)	(0.15)
F-value	1598.16***	52.01***			26.94***	20.93***		
chi2					1125.42***	1330.26***	334.36***	279.77***
AR (1)	0.00	0.00						
AR (2)	0.41	0.13						
Hansen (J)	0.19	0.37						
R-squared			0.64	0.52	0.39	0.36	0.48	0.44
Rho							0.476	0.47
Observations	648	648	756	756	756	756	756	756
Industry FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust p-values are presented in parenthesis.
*Indicate statistical significance at the 10% level.
**Indicate statistical significance at the 5% level.
***Indicate statistical significance at the 1% level.

In addition, a test of homoscedasticity using Durbin–Watson statistics, linearity, normality (not reported for brevity reasons but available upon request) was conducted. These test results indicate there is no serious violation of OLS assumptions.[8] Interestingly, the correlation results show a significant positive association between both proxies of gender diversity (GD and GDi) and ethical CG disclosure index (NECGI). This association indicates that firms with female directors tend to disclose higher ethical CG practices as hypothesised

4.3. Empirical results

Here, we discuss our results based on the predictors of female directorship as estimated by the first stage of 3SLS estimation (see Table 2 for summarised results). To begin with, NECGI significantly and positively affects female board representation across both gender diversity proxies. This result implies firms with high ethical governance disclosure recruit more female directors. Ceteris paribus, increase in ethical CG disclosure improves female directorship. This suggests reverse causation between the two proxies where increase in board female membership increases ethical governance disclosures and vice versa. Interestingly, firm performance (ROA) has a positive impact on female directorship albeit with a marginal effect.

Similarly, cross-listing is positively associated to female directorship suggesting that firms that are listed in both Nigeria and foreign markets have more gender-diverse boardrooms compared to firms that are listed solely in Nigeria. On the other hand, large boards, NEDs and CEO duality inversely affect the recruitment of female directors. This suggests that in the presence of other firm-level individualities, larger boards, boards with a majority NED and with separated CEO and chairman positions are not necessarily gender-diverse boards which suggest they are substitute CG mechanism to the latter. More interestingly, contrary to theoretical expectations, boardrooms with foreign directors' representation are less gender diverse which suggests that foreign directors and female directors are substitute CG mechanisms. This result also suggests that most of the foreign directors are likely to be men.

Table 3 shows our main multivariate results based on system GMM (columns 2 & 3), 3SLS (columns 4 & 5), fixed effect (columns 6 & 7) and GLS (columns 8 & 9) estimations while controlling for other firm individualities. As hypothesised (H1), female directorship has a significant positive impact on ethical CG disclosure irrespective of the

[8] For example, the highest VIF is below 7.0, which is less than the critical value of 10. Similarly, tolerance statistics ranged from 0.324 to 0.756.

Table 4
Moderating role of foreign directors, board size and institutional shareholders.

Variables	System GMM						Three Stage Least Square (3SLS)					
	Model 1			Model 2			Model 1			Model 2		
L.NECGI	0.55***	0.54***	0.55***	0.53***	0.46***	0.46***						
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)						
GD	0.15***	0.49***	0.16***				0.39***	3.12***	−0.39			
	(0.00)	(0.00)	(0.00)				(0.00)	(0.00)	(0.37)			
GDi				−0.44	12.79**	−0.33			6.39***	11.49***	−24.76***	
				(0.76)	(0.01)	(0.69)				(0.01)	(0.00)	(0.00)
GD * FBM	0.01***						0.01**					
	(0.00)						(0.01)					
GDi * FBM				0.11**						0.28***		
				(0.02)						(0.00)		
GD * BSZ		−0.03**						−0.27***				
		(0.03)						(0.00)				
GDi * BSZ					−1.27**						−10.83***	
					(0.01)						(0.00)	
GD * ISH			0.00**						0.01*			
			(0.02)						(0.06)			
GDi * ISH						0.04***						0.51***
						(0.01)						(0.00)
ROA	−0.06***	−0.04**	−0.07***	−0.03*	−0.06**	−0.07***	0.04	0.06*	0.05**	0.03	−0.07	0.05**
	(0.00)	(0.02)	(0.00)	(0.10)	(0.02)	(0.00)	(0.12)	(0.09)	(0.04)	(0.26)	(0.12)	(0.02)
CEOD	0.41	10.04	1.95	4.17	0.06	−1.28	16.12***	15.52***	17.48***	21.25***	24.81***	18.30***
	(0.85)	(0.33)	(0.50)	(0.59)	(0.99)	(0.47)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
NED	0.10***	0.07**	0.09***	0.05	0.06	0.06***	0.14***	0.13***	0.12***	0.09***	0.02	0.09***
	(0.00)	(0.05)	(0.00)	(0.19)	(0.17)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.69)	(0.00)
BSZ	0.23***	1.34***	0.25***	0.47	1.85***	0.41***	1.48***	6.66***	1.22***	1.11***	10.71***	1.01***
	(0.00)	(0.00)	(0.00)	(0.11)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
FBM	−0.05***	0.05	−0.02	−0.07	0.01	−0.03*	0.11**	0.18***	0.19***	−0.06	0.10**	0.18***
	(0.00)	(0.33)	(0.22)	(0.28)	(0.79)	(0.08)	(0.01)	(0.00)	(0.00)	(0.28)	(0.01)	(0.00)
GEAR	−0.03***	−0.02	−0.03***	−0.04	−0.05	−0.05***	−0.02**	−0.01	−0.02*	−0.03**	−0.02*	−0.03**
	(0.00)	(0.46)	(0.01)	(0.14)	(0.12)	(0.00)	(0.05)	(0.38)	(0.06)	(0.04)	(0.07)	(0.03)
DL	1.20	−0.78	2.63***	−5.07	−0.17	2.45*	0.11	3.26**	1.57	2.26*	6.02***	3.33***
	(0.26)	(0.83)	(0.00)	(0.28)	(0.97)	(0.06)	(0.93)	(0.01)	(0.21)	(0.08)	(0.00)	(0.01)
ISH	0.06***	0.11***	−0.00	0.11***	0.05	−0.00	−0.02	0.02	−0.22**	0.00	−0.03	−0.44***
	(0.00)	(0.00)	(0.91)	(0.01)	(0.18)	(0.98)	(0.40)	(0.43)	(0.04)	(0.95)	(0.17)	(0.00)
TA	−2.39***	−1.43	−2.55***	−0.18	−1.32	−1.89***	2.23***	0.77	3.13***	2.70***	1.41	3.69***
	(0.00)	(0.30)	(0.00)	(0.89)	(0.40)	(0.00)	(0.00)	(0.35)	(0.00)	(0.00)	(0.12)	(0.00)
CAPEX	0.00***	−0.00	0.00***	0.01*	0.00	0.00	0.00	−0.00	0.00	0.00	−0.00	0.00
	(0.01)	(0.90)	(0.00)	(0.06)	(0.89)	(0.16)	(0.85)	(0.40)	(0.69)	(0.46)	(0.65)	(0.82)
SG	−0.04***	−0.03**	−0.04***	−0.04**	−0.04**	−0.04***	−0.05***	−0.03	−0.02*	−0.06***	−0.06***	−0.03**
	(0.00)	(0.03)	(0.00)	(0.03)	(0.04)	(0.00)	(0.00)	(0.10)	(0.09)	(0.00)	(0.00)	(0.02)
AFS	6.53***	7.95	7.68***	11.91**	10.83**	11.71***	7.42***	8.75***	8.34***	7.91***	9.84***	9.30***
	(0.00)	(0.15)	(0.00)	(0.03)	(0.04)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.00	0.00	34.21***	17.22	0.00	0.00	1.04	−47.66***	11.12	5.57	−80.11***	25.38***
	(0.15)	(0.91)	(0.00)	(0.22)	(0.89)	(0.90)	(0.81)	(0.00)	(0.12)	(0.23)	(0.01)	(0.00)
F-value	463***	256***	1709***	34***	139***	985***						
chi2							1427***	1219***	1319***	1147***	1109***	1387***
AR (1)	0.00	0.00	0.00	0.01	0.01	0.00						
AR (2)	0.14	0.26	0.31	0.11	0.24	0.20						
Hansen (J)	0.42	0.41	0.56	0.19	0.26	0.21						
R-squared							0.62	0.48	0.62	0.59	0.39	0.58
Industry FE							Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	648	648	648	648	648	648	756	756	756	756	756	756

Robust p-values are presented in parenthesis.
*Indicate statistical significance at the 10% level.
**Indicate statistical significance at the 5% level.
***Indicate statistical significance at the 1% level.

gender diversity proxy. Specifically, the coefficient of GD and GDi in our main estimation method (GMM) are significant (β = 0.25, p = 0.00) and (β = 1.91, p = 0.06). These results are consistent with the significant results reported for 3SLS, fixed effect and GLS estimations.[9] The significant impact of female directorship on ethical CG standards supports our main research hypothesis (H1). Our results also have economic significance. Specifically, a one standard deviation change (increase) in the proportion of female board membership leads to 2.9% (11.67 × 0.25) improvement (increase) in ethical CG practices. This result evidences our multi-theoretical framework (ethicality, risk averseness and diversity) and shows that the sensitivities, morality, ethical concerns and risk traits of female board members enable them to improve on organisational disclosure of CG practices. Specifically, our results advance the debate on gender diversity by showing that the presence of female directors in corporate boards even in patriarchal societies such as Nigeria; is essential in enhancing transparent information on firms' ethical CG practices. Our results support the findings of Nadeem et al. (2017) but contrast that of Giannarakis et al. (2014)

[9] These latter estimations for gender diversity dummy (GDi) are significant at 1% or less (p < 0.00) whereas for system GMM, significance is at 10% (p < 0.1). These results suggest that endogeneity in the other estimation methods may have amplified the significant gender diversity dummy (GDi) and ethical CG disclosure association.

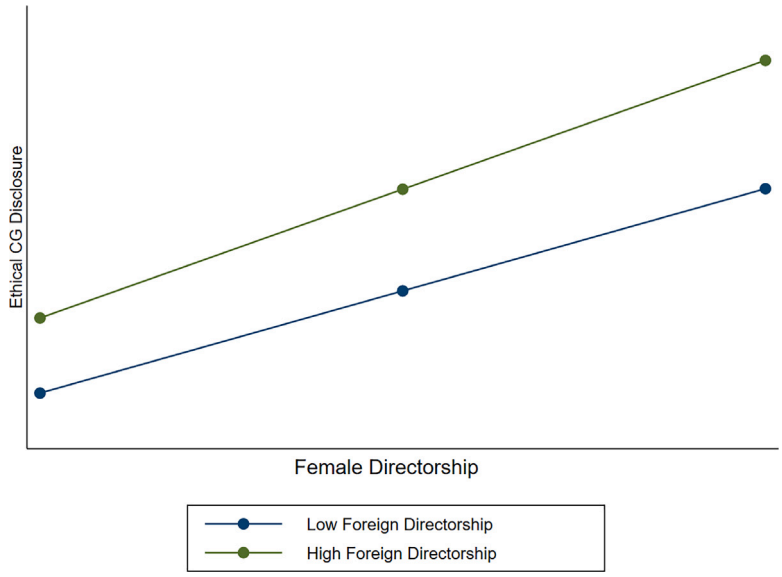

Fig. 5. Moderating effect of foreign directors.

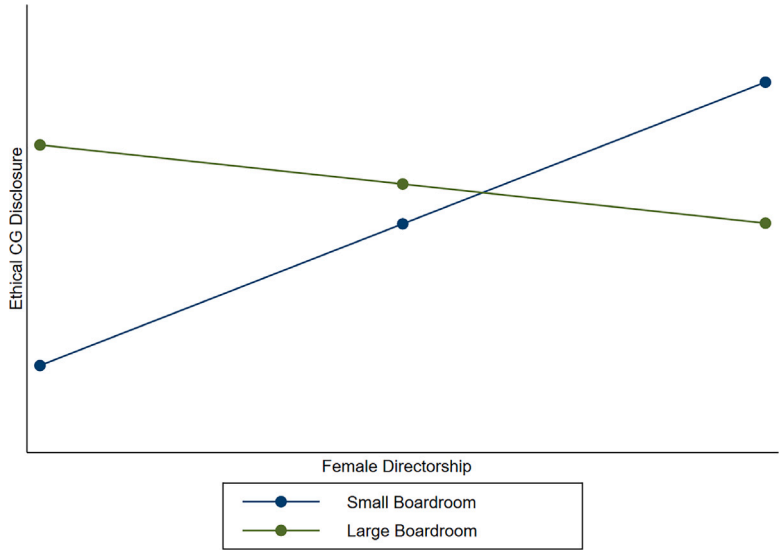

Fig. 6. Moderating effect of board size.

who reported positive and negative effect of female directors on CSR respectively.

Table 4 reports the moderating role of foreign directors, board size and institutional shareholding on female directorship and ethical CG disclosure nexus. For brevity reasons we report only the results of our main model system GMM (columns 2 to 7) and 3SLS (columns 8 to 13). Specifically, the Models 1 & 2 capture the sequential addition of each of the three moderating effects.[10]

Recall, we earlier hypothesised (H2) that foreign directors positively moderate the impact of female directors on ethical CG disclosure practices. This hypothesis is supported with statistical significance across both gender diversity proxies and the estimation method. Specifically, the GD ∗ FBM and GDi ∗ FBM are significant (column 2, $\beta = 0.01$, $p = 0.00$, and column 5, $\beta = 0.11$, $p = 0.02$ respectively). This suggests the effectiveness and impact of female directors on ethical CG disclosure improves by approximately 0.12% (11.67 × 0.01) for firms that have foreign directorship. To further probe this moderating effect, we conducted a simple slope test that examines the association between female directorship and ethical CG practices at high and low foreign directorship. Consistent with prior research (e.g Tajvarpour & Pujari, 2022), we consider low and high levels of foreign directorship as equivalent to one standard deviation below and above the mean respectively. Fig. 5 shows that foreign directors positively enhance the impact of female directors on ethical CG disclosure both at a high and low level of representation though the former is more pronounced. This implies foreign directors collaborate with female directors to improve disclosure of ethical CG practices which supports hypothesis (H2).

In our third hypothesis (H3), we argue large boardrooms limit the ability of female directors to impact on ethical CG practice as it increases free-riding behaviour and breeds inefficiency and limited cohesiveness. This hypothesis is significantly supported for the interaction

[10] For example, in the system GMM estimation, columns 2, 3 and 4 in Model 1 is the addition of the interaction effect between the female directorship proxy "GD" and foreign directorship (GD ∗ FBM), board size (GD ∗ BSZ) and institutional shareholding (GD ∗ ISH) respectively. Similarly, in Model 2, columns 5, 6 and 7 is the addition of moderating effect of foreign directors (GDi ∗ FBM), board size (GDi ∗ BSZ) and institutional shareholding (GDi ∗ ISH) with the female directorship proxy "GDi".

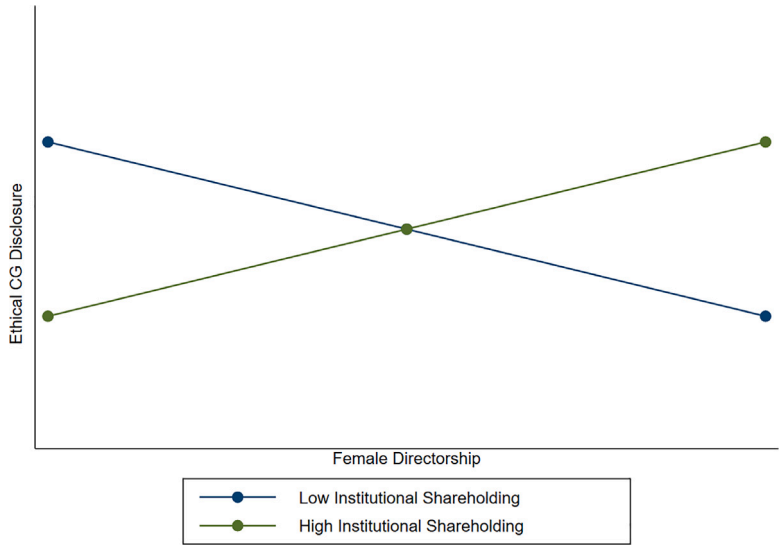

Fig. 7. Moderating effect of institutional shareholders.

variable GD ∗ BSZ (column 3, $\beta = -0.03$, p = 0.03) and GDi ∗ BSZ (column 6, $\beta = -1.27$, p = 0.01). The results suggest that an increase in board size reduces the ability of female directors to enhance ethical CG disclosure by approximately 0.35% (11.76 × 0.03). We also plot the interaction slope for this effect using one standard deviation above and below the mean as shown in Fig. 6. It shows that large boards weaken the effect of female directors on ethical CG practices while they are more effective in smaller boards. This suggests female directors are more effective in using their experience, knowledge, perspective and creativity to improve the CG practices in smaller compared to larger boardrooms which support the hypothesis (H3).

Finally, we contend institutional shareholders are likely to strengthen female directors' effectiveness in enhancing ethical CG practices (H4). As can be seen in Table 4 for the interaction variables - GD ∗ ISH (column 4) and GDi ∗ ISH (column 7), the coefficients are significant ($\beta = 0.00$, $p = 0.02$ and $\beta = 0.04$, $p = 0.01$ respectively). The moderating effect slope is reported as shown in Fig. 7. The figure shows that a low level of institutional shareholding weakens the impact of female directors on ethical CG practices but a high level of institutional shareholding strengthens the relationship in support of the hypothesis (H4). This suggests that, due to the active monitoring of management to reduce information asymmetry, institutional investors with high ownership, trust and support female directors as they are more sensitive to issues of ethical reporting which improves ethical disclosure of CG practices.

4.4. Robustness test

4.4.1. Robustness based on sensitivity to sub-categories of ethical governance

We observe that female directors may be more sensitive to some ethical CG requirements than others. For example, some authors have argued that governance actors comply more with guidelines which directly impact the economic returns of firms (Ntim et al., 2012). This suggests that female directors may be more inclined to encourage ethical disclosure of provisions that have a direct impact on shareholder value maximisation than those that have an impact on stakeholders.[11]

Consistent with prior research (e.g Areneke & Kimani, 2019; Ntim et al., 2012), we split the ethical CG disclosure index (NECGI) into two sub-indices with one composed of 61 provisions aimed at improving ethical behaviours towards shareholder value maximisation and 14 which are directed towards ethical behaviour for non-equity stakeholders.

Table 5 shows the results of the impact of female directorship on both sub-indices. For brevity, we report only the results of our main estimation method-system GMM.[12] The result shows that the impact of female directors on ethical shareholder disclosures is positive and significant. This result confirms our main findings and corroborates the argument that female directors are effective monitors (Adams, 2016; Erhardt et al., 2003) and as such, enhance ethical shareholder disclosures and reduce information asymmetry between managers and shareholders.

Furthermore, consistent with our main results, female directorship significantly improves ethical stakeholder governance disclosures. Interestingly, the female directorship-ethical stakeholder governance disclosure association coefficients ($\beta = 0.35$, $p = 0.00$ and $\beta = 5.47$, $p = 0.00$ for both proxies respectively) is higher and more significant than female directorship-ethical shareholder governance disclosure relation ($\beta = 0.26$, $p = 0.00$ and $\beta = 1.28$, $p = 0.00$ for both proxies respective). Specifically, a one standard deviation change (increase) in the proportion of female directors is associated with 4.12% (11.760 × 0.35) improvement in stakeholder-oriented ethical CG quality but enhances shareholder-oriented CG quality by 3.06% (11.760 × 0.26). This suggests that female directors are driven by the need to achieve communal goals, which emphasises interpersonal relationship development which includes prioritising non-equity stakeholders in their ethical behaviours.

The results of the interaction effects of female directorship with foreign directorship, board size and institutional shareholding on the sub-indices are presented in Table 6. As can be seen in the table, our results remain unchanged for these moderating effects. Furthermore, following Konara and Shirodkar (2018), for additional robustness, we use Principal Component Analysis (PCA) to reduce the 75 CG provisions into one component and use this as an alternative measure of the ethical CG disclosure index. Our findings remain unchanged when we use this alternative measure (for brevity reasons, we do not include the tabulated results but it is available upon request).

[11] For example, there has been some debate (see Areneke, Adegbite et al., 2022) on whether ethical stakeholder governance disclosures practices contribute to firm value, compared to ethical shareholder disclosures.

[12] Columns 2 and 3 and columns 4 and 5 show the results based on shareholder ethical CG disclosure (SHNECGI) and stakeholder (SKNECGI) sub-indices respectively.

Table 5
Robustness to ethical corporate governance quality sub-indices.

Variables	Shareholder-oriented [SHNECGI]		Stakeholder-oriented [SKNECGI]	
	Model 1	Model 2	Model 1	Model 2
L.SHNECGI	0.51***	0.56***		
	(0.00)	(0.00)		
L.SKNECGI			0.61***	0.62***
			(0.00)	(0.00)
GD	0.26***		0.35***	
	(0.00)		(0.00)	
GDi		1.28***		5.47***
		(0.00)		(0.00)
ROA	−0.09***	−0.06***	−0.06*	−0.03***
	(0.00)	(0.00)	(0.08)	(0.00)
CEOD	2.14	3.35	10.99	8.54***
	(0.79)	(0.24)	(0.26)	(0.00)
NED	0.10**	0.02**	0.16**	0.09***
	(0.03)	(0.03)	(0.01)	(0.00)
BSZ	0.06	0.12	0.04	0.18**
	(0.84)	(0.12)	(0.91)	(0.02)
FBM	0.01	−0.06***	0.0016	−0.02
	(0.88)	(0.00)	(0.99)	(0.57)
GEAR	−0.02	−0.02***	−0.03	−0.02***
	(0.52)	(0.00)	(0.503)	(0.00)
DL	3.47	5.96***	0.33	0.92
	(0.52)	(0.00)	(0.96)	(0.55)
ISH	0.03	0.04***	0.18**	0.20***
	(0.39)	(0.00)	(0.01)	(0.00)
TA	−3.15*	−2.15***	−2.60	−0.84**
	(0.08)	(0.00)	(0.31)	(0.03)
CAPEX	−0.00	−0.00	−0.00	0.00
	(0.96)	(0.18)	(0.80)	(0.14)
SG	−0.03*	−0.03***	−0.06**	−0.05***
	(0.07)	(0.00)	(0.01)	(0.00)
AFS	5.24	9.35***	5.08	7.67***
	(0.35)	(0.00)	(0.36)	(0.00)
Constant	65.92***	37.99***	65.3***	38.26***
	(0.00)	(0.00)	(0.00)	(0.00)
F-value	1508.93***	4465.66***	799.17***	1360.00***
AR (1)	0.01	0.00	0.01	0.00
AR (2)	0.47	0.32	0.51	0.27
Hansen (J)	0.22	0.23	0.2	0.208
Observations	648	648	648	648
Year FE	Yes	Yes	Yes	Yes
Observations	648	648	648	648

Robust p-values are presented in parenthesis.
*Indicate statistical significance at the 10% level.
**Indicate statistical significance at the 5% level.
***Indicate statistical significance at the 1% level.

Finally, since financial firms constitute the majority of our sample, in un-tabulated results, we excluded financial firms and our results remained qualitatively unchanged.

5. Discussion and conclusions

This paper addresses an important research gap relating to whether and to what extent female directorship (gender diversity) impacts ethical CG disclosure practices in the under-research Nigerian setting and if internal and external CG mechanisms moderate this relationship. In doing so, it makes five distinct contributions to corporate governance studies.

First, we contribute to the evolving interface between gender diversity and CG literature by employing ethicality, risk averseness and diversity theorising, to provide a robust theoretical link between female directorship and ethical CG disclosure practices. We further evidence this link by developing a conceptual framework that shows the value relevance of gender diversity on ethical CG disclosure. This study shows that, due to their motivation to promote ethical standards, female directors bring their experience, leadership skills, communal orientation, ideas, interests, perspectives and creativity in boardrooms which increases ethical CG disclosures. Specifically, our results suggest that ethical CG disclosure varies considerably between firms with female directorship and those without such representation. In particular, firms that employ female directors have higher ethical CG disclosure than those without such representation. This suggests that firms do not only meet the legitimacy, representativeness and ethical concerns of different stakeholders by increasing gender diversity on boards, but in addition, firms with female directorship improve on firm-level ethical CG disclosure practices.

Second, our study offers new evidence on the relevance of female directors in institutional contexts (Nigeria) characterised by patriarchal beliefs, socio-political and economic instability, and institutionalised culture of unethical governance and corruption practices (Nakpodia & Adegbite, 2018). Akin to prior studies which have reported the value relevance of female directorship in Western economies (e.g Cumming et al., 2015; Erhardt et al., 2003; Tunyi et al., 2023), our results also indicate that, even within patriarchal societies such as Nigeria, women continue to be instrumental in promoting ethical practices in the management of firms. Our study helps in challenging the stereotypes in developing countries (especially those in Africa) about the traditional roles assigned to women.

Third, while prior CG studies have examined only the direct impact of female directorship on corporate practices (e.g Cumming et al., 2015; Nadeem et al., 2017; Tunyi et al., 2023), our study extends these studies and offers new evidence that the value relevance of female directors on corporate practices is strengthened (or weakened) by other CG factors. Specifically, due to the limited representation of women in boardrooms, their effectiveness is dependent on the presence of other supporting or limiting CG mechanisms. We evidence this by showing that female directors are more effective in influencing good CG practices in firms with institutional ownership and in boardrooms with foreign directors. On the other hand, large boardrooms limit the ability of women directors to enhance CG practices as it increases free-riding behaviour, inefficiency and lack of cohesiveness. Specifically, female directors are more likely to use their experience, ideas, perspective and creativity to enhance ethical CG practices when boardrooms are small.

Fourth, we contribute to the growing literature on substitutability and complimentary of CG mechanisms also known as CG bundles (see Schiehll et al., 2014; Yoshikawa et al., 2014, for detail discussion), which has largely ignored the boardroom diversity dimension. According to this literature, due to the cost of implementing CG mechanisms to address agency cost, firms chose different CG structures to ensure maximum utilisation of benefits. As such, CG mechanisms can either substitute or complement each other. Complementary CG mechanisms are those that can be chosen together to address agency problems. On the other hand, substitute mechanisms are those that the choice of one replaces the other. Therefore, drawing on our results (as shown in the first stage of our 3SLS estimation), we advance this literature by showing that in the presence of firm-level individualities in forming CG bundles (optimal CG structure), female directorship is a substitute mechanism for larger boards, separated CEO/Chairman position, non-executive and foreign directorships. Specifically, female directors are more likely to be replaced in larger than in smaller boardrooms. Similarly, women are less likely to participate actively in boardrooms where the chairman and CEO positions are separated. In the same light, female directors are more likely to be substituted by foreign and non-executive directors. However, cross-listing of firms complements the appointment of female directors. This implies that the bonding of firms with international capital markets through cross-listing promotes the appointment of women in corporate boards.

Finally, our findings provide policy and practitioner relevance. We contend that the positive gender diversity-CG disclosure relationship meets both policy and regulatory objectives of improving CG practices and female directorship. Specifically, by requiring firms to increase female board representation, CG policy objectives aimed at improving CG standards are attained. More so, in patriarchal societies such as in

Table 6
Robustness: Moderating effect of foreign directors, board size & institutional shareholders.

Variables	Shareholder-oriented [SHNECGI]						Stakeholder-oriented [SKNECGI]					
	Model 1			Model 2			Model 1			Model 2		
L.SHNECGI	0.52***	0.52***	0.52***	0.48***	0.43***	0.41***						
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)						
L.SKNECGI							0.62***	0.61***	0.63***	0.65***	0.63***	0.68***
							(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
GD	0.15**	0.31***	0.12***				0.20*	0.68***	0.27***			
	(0.05)	(0.00)	(0.00)				(0.08)	(0.01)	(0.00)			
GDi				−1.01	9.65*	−1.22				2.79	17.18**	1.21
				(0.52)	(0.08)	(0.23)				(0.22)	(0.03)	(0.52)
GD*FBM	0.01**						0.01**					
	(0.01)						(0.04)					
GDi*FBM				0.10*						0.12*		
				(0.05)						(0.09)		
GD*BSZ		−0.01***						−0.05**				
		(0.00)						(0.03)				
GDi*BSZ					−0.98						−1.39*	
					(0.10)						(0.07)	
GD*ISH			0.00***						0.00***			
			(0.00)						(0.01)			
GDi*ISH						0.04**						0.06**
						(0.03)						(0.04)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	25.35***	16.36***	29.34**	29.85**	33.12**	58.73***	1.04	−47.66***	11.12	5.57	−80.11***	25.38***
	(0.00)	(0.00)	(0.05)	(0.05)	(0.02)	(0.00)	(0.81)	(0.00)	(0.12)	(0.23)	(0.00)	(0.00)
F-value	1075***	4957***	497***	37***	41***	173***	33***	35***	441***	33***	45***	511***
AR (1)	0.01	0.00	0.00	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.01	0.00
AR (2)	0.20	0.44	0.51	0.45	0.66	0.62	0.29	0.17	0.52	0.11	0.20	0.22
Hansen (J)	0.55	0.28	0.58	0.18	0.20	0.12	0.30	0.34	0.50	0.14	0.17	0.91
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	648	648	648	648	648	648	648	648	648	648	648	648

Robust p-values are presented in parenthesis.
*Indicate statistical significance at the 10% level.
**Indicate statistical significance at the 5% level.
***Indicate statistical significance at the 1% level.

sub-Saharan Africa (by extension developing countries), our findings provide incentives to regulatory, government and other stakeholders to embark on developing gender policies which promote female representation within state, private and public institutions. Particularly, CG codes are continuously updated to reflect current global trends, however, the current 2018 Nigeria CG code (an update of the 2011 code) and those in other developing countries emphasise on female representation (Areneke, Khlif et al., 2022) but does not include any requirement for gender quota representation in boardrooms. Therefore, given the weak institutional systems in Nigeria (and by extension, sub-Saharan African countries) (Adegbite, 2015; Areneke & Kimani, 2019; Nakpodia & Adegbite, 2018), we suggest that in order to harness the full potential of women in boardrooms, gender quotas should be enforced and or made mandatory within future industry-specific and or country level governance codes.

Despite the above contributions, our findings should be interpreted in line with certain limitations, which offers directions for future research. First, our study is based on a single country, which may affect the generalisation of the findings to other economies (especially in the West). Future research can conduct a cross-country comparative study of gender diversity- ethical CG disclosure associations. In addition, the study uses an unweighted index to measure ethical CG disclosure. The unweighted index may not have captured the significance attached to some groups of requirements as they treat all provisions as equally important. Even though, empirical research in CG suggests that weighted and unweighted indices provide similar results, especially where provisions are large (Ntim et al., 2012), future research can use a weighted approach. Moreover, as the pressure to increase female board representation and CG practices is expected to continue, an exciting area for future research will be to explore female board behavioural patterns and how they contribute in improving CG practices. Finally, our study concentrates primarily on boardroom gender diversity but does not cover other diversity characteristics that can affect CG disclosure practices such as age, tenure, functional expertise, ethnicity, or educational background of board members. This presents an opportunity for more research in these areas.

CRediT authorship contribution statement

Geofry Areneke: Writing – review & editing, Writing – original draft, Software, Methodology, Investigation, Formal analysis, Data curation, Conceptualization, Supervision. **Emmanuel Adegbite:** Writing – review & editing, Supervision. **Abongeh Tunyi:** Writing – review & editing, Formal analysis, Project administration, Methodology. **Tanveer Hussain:** Writing – review & editing, Methodology.

Data availability

Data will be made available on request.

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Appendix. Measurement of variables

See Table A.1.

Table A.1
Measurement of variables.

Variable	Measurement	Data source
SEC 2011 Ethical CG Disclosure (dependent variable)		
Ethical CG disclosure index (NECGI)	A continuous variable measuring firm ethical governance disclosure following the 75 provisions of Nigeria SEC 2011 CG regulation. It involves the manual reading of each annual report and award a score of "1" or "0" for disclosure of each of the 75 governance guidelines. It ranges from zero (0%), indicating non-disclosure to any of the provisions up to 75 (100%), indicating full disclosure.	Annual report
Shareholder-oriented ethical CG disclosure index (SHNECGI)	A continuous variable measuring the disclosure to the 61 shareholder oriented provisions of Nigeria SEC 2011 CG code. It ranges from zero (0%), indicating non-disclosure to any of the provisions up to 61 (100%), indicating full disclosure.	Annual report
Stakeholder-oriented ethical CG disclosure index (SKNECGI)	A continuous variable measuring the disclosure to the 14 stakeholder oriented provisions of Nigeria SEC 2011 CG code. It ranges from zero (0%), indicating non-disclosure to any of the provisions up to 14 (100%), indicating full disclosure.	Annual report
Independent and moderating variables		
Gender diversity (GD)	Percentage of female directors to total board size.	Annual report
Gender diversity (GDi)	A dummy variable "1" if a firm has at least one female director, otherwise "0".	Annual report
Foreign board members (FBM)	Percentage of non-native board members to the total board size.	Annual report.
Board size (BSZ)	The logarithm of the number of board members.	Annual report
Institutional shareholding (ISH)	Percentage of shares held by institutional shareholders to the total shares of a firm	
Control variables		
Return on asset (ROA)	Percentage of earnings of the year divided by total assets.	DataStream.
CEO duality (CEOD)	Dummy variable "1" if CEO/chairman role are held by separate persons, otherwise "0".	Annual report
Non-executive directors (NED)	Percentage of non-executive directors to the total board size.	Annual report
Dual Listing (DL)	A dummy variable "1" if a firm is listed in another stock market, otherwise "0".	DataStream
Total asset (TA)	The log of a firm's total asset.	DataStream
Capital expenditure (CAPEX)	Capital expenditure as percentage of total assets	DataStream
Sales growth (SG)	Percentage change of current year's sales minus previous year's sales divided by previous year's sales.	DataStream
Audit firm size (AFS)	A dummy variable "1" if a firm is audited by the top 4 international auditors (i.e. PricewaterhouseCoopers, Deloitte Touche Tohmatsu, KPMG and Ernst and Young), otherwise "0".	Annual report
Industry fixed effects (h)	Six industry dummies.	
Year fixed effects (t)	Seven firm-year dummies.	

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