Tec Empresarial
P-ISSN: 1659-2395; E-ISSN: 1659-3359

GENDER AND ETHNIC DIVERSITY ON BOARDS AND FINANCIAL REPORTING QUALITY: EVIDENCE FROM NIGERIA

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Abstract

The research aim to investigate the potential influence of gender and ethnic diversity within corporate boards on the quality of financial reporting. The study employed panel data analysis, utilising a sample size of 960 firm-year observations spanning the time frame of 2012 to 2021. The data concerning corporate governance was obtained through manual collection from the annual reports of corporations, which were readily available on the Nigerian Exchange Group platform. In contrast, the financial data was acquired from the Thomson Reuters Eikon database. According to our research findings, firms that have a significant presence of female directors demonstrate a notable influence on the quality of financial reporting, as assessed through the measurement of anomalous accruals. Likewise, organisations that possess boards with greater ethnic diversity exhibit an elevated standard of financial reportig.This study shows that firms within a multicultural setting need to increase their board diversity for more transparent financial reporting. Accordingly, both the agency theory and the upper-echelons perspective lend support for more women and ethnic considerations on board. Our measure for ethnic diversity (language names of directors) might not be well known. We used the directors' tribal names to determine

their ethnicity, a concept that hasn't received much attention in the literature up to this point. Our findings imply that in the discussion of board diversity, regulatory authorities may need to take into account additional salient varied societal elements.
Keywords: Financial reporting quality, Gender diversity, Ethnic diversity, Abnormal accruals, Board.

1. Introduction

Accounting scholars have documented evidence of several factors that give rise to variation in financial reporting outcomes (Abdulmalik and Ahmad, 2016; El-Dyasty and Elamer, 2022), including gender, and ethnic diversity. While gender diversity commands engaging literature in the field (Dobija et al., 2022; Francis et al., 2015; Ham et al., 2017), a scanty (Hashim, 2012; Rahimah et al., 2012) or lack of sustained scholarly work on ethnicity as a determinant of financial reporting outcome, alludes to an argument that ethnic diversity does not affect financial reporting quality (FRQ). Yet, multicultural diversity affects firms' financial outcomes (Armaya'u et al., 2019).

Nigeria offers quite an interesting setting because of its unique cultural values, financial reporting environment, and socio-economic realities. For example, the country has a masculine culture where the male gender hegemonises family and organisational life. Also, ethnicity plays a dominant role in national, public, and organisational life, with few exceptions.
The Financial reporting quality (FRQ) is essential for the transparency and accountability of firms. However, FRQ may be influenced by various factors, such as the assortment of board followers in terms of ethnicity and gender. Previous researches explores the correlation between board diversity and corpprate effects, such as organisational valuation and profitability (Carter et al., 2010; Ntim, 2015). However, these studies have mainly used Tobin's Q as a measure for firm outcomes, which may not capture the nuances of FRQ. Moreover, there is a lack of empirical evidence on in what way board diversity affects the reliability and accuracy of financial reports, which are the key indicators of FRQ. Consequently, this research study aims to bridge the gap by considering the impact of board multiplicity on FRQ, using the performance-matched model of Kothari et al. (2005) as a measoure for FRQ. This model allows us to regulate for effects of company performance on FRQ and isolate the effects of board diversity. By doing so, this research study contributes to the existing research on domain of corporate governance with accounting quality, and affords some implications in lieu of policy makers, academia and practitioners.

Our study contributes to knowledge and theory as follows. First, our work adds evidence to the effect of ethnicity on financial reporting choices, with particular reference to the Nigerian cultural setting. We utilised the tribal (language) appellations of directors to classify their ethnicity. It provides suggestion of the gender role and masculinity of the Nigerian culture and its effect on financial reporting choices. Second, our evidence indicates that financial reporting choices may not be an exclusive preserve of the chief executive officer (CEO) and the chief financial officer

(CFO), which is consistent with Hopkins et al. (2015). Instead, certain board characteristics and diversity bring to bear decisions that influence the likelihood to manage earnings. Third, we extend the works of Ntim (2015) and Carter *et al.* (2010) by reveals that FRQ is artificial by some other prominent board characteristics that are not emphasised by corporate governance codes. Fourth, following the agency theory, board diversity should consider gender and ethnicity mix at the upper echelons, for transparent reporting.

2. Literature Review and Hypotheses Development

2.1 Gender Diversity and Financial Reporting Quality

In recent years, gender diversity gains increased consideration in policymaking through corporate governance codes as a requirement for an effective corporate board. This call for gender diversity stemmed out of the demand for the role of the female gender in financial reporting conservatism (Francis et al., 2015), and the monitoring of organisation (García-Sánchez et al., 2017), among others. Consequently, increase in female board participation is significantly essential in the world.

Going by the agency theory, Abbott et al., (2012) states the manifestation of female board member improves the board's ability to moderate financial reporting. This notion holds because women are perceived to be more conservative, ethically sensitive, and fewer aggressive in earnings management practices (Ho et al., 2015; Daluma & Saleh, 2017; Pucheta-Martínez et al., 2018). However, there could be consequences for FRQ if adding women to corporate boards becomes a mere exercise to fulfil statutory diversity requirements (Wahid, 2019).

In contrast, Damagum et al. (2014) posited that the augmentation of female representation on company boards, as opposed to the mere presence of a solitary woman, has a positive influence on Financial Reporting Quality. The results of their study indicate a lack of correlation between the inclusion of a female director and the financial profitability of a company. In a similar vein, the research study conducted by Firoozi et al., (2016), exposed a lack of correlation between the existence of women directors and the financial reporting quality. Moreover, Ujunwa et al. (2012) have demonstrated that the presence of gender diversity inside a corporation is associated with a detrimental effect on its performance. Currently, research study on the correlation among gender orientation and ethical perceptions has produced inconsistent findings. Arguably, the hire of female gender on board does not only enrich the board characteristics' visibility but brings to bear its conservatism and ethical considerations on the panel's monitoring and control function.

Based on the aforementioned discourse, a correlation is anticipated to exist among gender diversity and FRQ. Therefore, we hypothesised that:

H_1: There is a positive correlation between gender diversity and quality of financial reporting.

3. Ethnic Diversity and Quality of Financial Reporting

Studies indicate that language diversity and ethnic background affect the internal workings of corporate boards. Relying on the tenets associated with the upper echelon's perspective, the idiosyncrasies of board members might influence their judgment in financial reporting choices. Specifically, a review of the ethnic and cultural psychography of board members might predict their monitoring ability and ethical considerations that affect FRQ. In Nigeria, some corporate boards intuitively reflect ethnic diversity in their composition even though there is no regulatory prerequisite to that influence (Adegbite, 2015).

Adegbite (2015) suggested that the inclusion of tribal-ethnic diversity should be considered when forming boards, specifically within the Nigerian setting. The author highlighted that Nigerian organisations with boards that exhibit various cultural ethnicity are generally believed to possess a more effective governance structure, as well as foster a greater sense of belonging and identity. Despite the absence of any statutory mandate, the justification for this practise may be traced back to the informal resolutions observed in post-colonial Nigeria. This situation subsists because a typical Nigerian generally expresses thoughts in the English language from an ethnic spectrum.

Earlier evidence by Carter et al. (2010) exposed as there is no discernible association between ethnic diversity and financial profitability, as no significant positive or negative correlation has been identified. Nasir et al.'s 2019 study revealed a significant positive correlation among the representation of ethnic Malays on company boards and occurrences of financial statement fraud. Hence, board heterogeneity continues to be a subject of debate.

The upper echelons theory efforts on the personality and features of individuals to describe their judgment, choices, and decision-making (Plöckinger et al., 2016). The theory explains how language and communication differences affect directors' viewpoints and the detection of managerial opportunism (Hooghiemstra et al., 2019; Saleh & Daluma, 2017). Hooghiemstra *et al.* (2019) also showed that variances in language structure exert influence on the monitoring quality of corporate boards. On the contrary, Guest (2019) found no evidence to associate board ethnic assortment with robust board moderating conclusions such as accounting misstatements.

The discussion posits a potential association between ethnic variety and FRQ, hence giving rise to the proposition that:

H_2: The study indicates a positive relationship between ethnic diversity and the financial reporting quality

4. Methodology

4.1 Sample and Data

This study examines the implementation of fresh corporate governance standards in the Nigerian Exchange Group (NGX) between 2012 and 2021, excluding companies in the financial services industry. The dataset includes firm-year samples from 168 listed firms, with a focus on gender and ethnic diversity. Data was sourced from the Thomson Reuters Eikon database and annual reports from NGX's website. The study aims to examine the influence of these variables on FRQ.

4.2 Method of data analysis

The study used panel data regression to analyze gender and ethnic diversity on boards and FRQ. Panel data analysis combination of cross-sectional and time-series observations, minimizing multicollinearity. It assumes heterogeneity among individuals, corporations, or countries, and offers more variability, less collinearity, improved efficiency, and a greater number of degrees of freedom. The robust Wald test was used to examine hypotheses related to predictor variables. STATA 14 statistical software was used for analysis.

The study fails to meet OLS regression assumptions, despite numerous measurements. Panel corrected standard error methodology uses due to heteroscedasticity in the model, offering improved precision and efficiency compared to OLS. This approach addresses heteroscedasticity and autocorrelation issues, ensuring the beliefs of OLS deterioration remain solid.

As the various gender diversity measures were highly correlated, we include the variables to the regressions in alternation, following Baixauli-Soler *et al.* (2016). The same procedure was followed for the three ethnic diversity measures. Consistent through prior studies (Gordini & Rancati, 2017; Maturo et al., 2018), our analysis employed the Shannon Diversity Index as follows:

$$H' = \sum_{i=1}^{n} pi \ln pi \tag{1}$$

Where P_i is the proportion of board gender diversity which ranges from a minimum of 0 to 0.5, for example, if there is equal representation of famales and men on a corporate board. *In* is the natural log of P_i

Similarly, Blau's Index is intended as follows:

$$1 - \sum_{i=1}^{n} P_{\mathrm{i}}^{2} \tag{2}$$

Where P_i has the same meaning as in equation (1). The properties of the Shannon Diversity Index are similar to that of Blau's Index, yet different and sensitive to its logarithmic diversity measure.

4.3 The model

Gender and ethnic diversity significantly impact accounting outcomes, particularly FRQ. To minimize specification errors, control variables were integrated into the analysis, influencing the projected value of ABNACC. This approach helps avoid omissions, inclusions, and incorrect functional forms, which can be caused by measurement inaccuracies and inaccurate specification of the stochastic error factor.

In this study, we employ the performance-matched aberrant accrual model proposed by Kothari et al. (2005) as a proxy for financial reporting quality (FRQ). Our objective is to examine the extent to which gender and ethnic diversity effectively curb opportunistic earnings management.

Hence, the subsequent model is estimated:

$$ABNACC_{it} = \alpha_{it}0 + \beta_1 GDIV_{it} + \beta_2 EDIV_{it} + \beta_3 CGEN_{it} + \beta_4 WMULD_{it} + \beta_5 BSIZE_{it} + \beta_6 BIND_{it} + \beta_7 BMT_{it} + \beta_8 BSH_{it} + \beta_9 MULD_{it} + \beta_{10} IOWN_{it} + \beta_{11} FSIZE_{it} + \beta_{12} LEV_{it} + \beta_{13} ROA_{it} + \beta_{14} LSTAGE_{it} + \beta_{15} BIG4_{it} + YEAR\_D + FIRM\_D + \varepsilon_{it} \quad (3)$$

Where:
ABNACC – Abnormal accruals;
GDIV – Gender diversity;
EDIV – Ethnic diversity;
CGEN – CEO gender;
WMULD – Women multiple directorship;
BSIZE – Board size;
BMT – Board meetings;
BIND – Board independence
BSH – Board shareholding;
MULD – Multiple directorship;
IOWN – Institutional ownership;
ROA – Return on assets;
FSIZE – Firm size;
LEV – Leverage;
LSTAGE – Listing age;
BIG4 – Big four audit firms;
YEAR_D – Year dummy;
FIRM_D – Firm dummy;
ε - Error term.

4.4 Variables Measurement

3.4.1 Dependent variable

Consistent with Kothari *et al.* (2005) we used the productivity harmonised Kothari et al. (2005) model to measure abnormal accruals wshich is our proxy for FRQ. The accruals for abnormality are the residuals of error-term obtained from regression that follows:

$$TA_{it}/A_{it-1} = \beta_0 + \beta_1(1/A_{it-1}) + \beta_2((\Delta REV_{it} - \Delta AR_{it})/A_{it-1}) + \beta_3(PPEG_{it}/A_{it-1}) + \beta_4(NI_{it}/A_{it-1}) + \varepsilon_{it} \qquad (4)$$

Where,

The calculation of Total Accruals (TAit) for business i in year t involves determining the discrepancy among net earnings (specifically, income prior to strange objects) and the operational cash streams. Ait refers to the aggregate value of assets. The symbol ΔREVit represents the alteration in revenue. The symbol ΔAR represents the variation in the balance of account receivables. PPEGit refers to the aggregate monetary worth of an organization's tangible assets, encompassing plant, property, and equipment. NIit refers to the net income. The variable "εit" represents the error term. The term "B0" refers to the intercept in a statistical model. The coefficients of independent variables are denoted as β1 to β4.

3.4.2 Gender diversity

The input discusses the importance of gender assortment in organizations and its influence on financial reporting. It references a study by Francis et al. (2015) that found female on boards tend to exhibit greater financial reporting conservatism. The study also mentions the methodology used to measure board gender diversity, including a binary variable and two alternative measures, the Shannon Diversity Index and Blau's Index.

3.4.3 The Concept of Ethnic Diversity

The input discusses several academic studies that focus on ethnic diversity in boardrooms and the measurement of ethnicity. Carter et al. (2010) provide a definition for ethnic minorities based on the categorization of directors as Hispanic, Black, or Caucasian. Upadhyay and Zeng (2014) assess board diversity in the United States, while Rahimah et al. (2012) quantify the ethnic composition of boards, specifically focusing on Bumiputra directors. The input also mentions a study by Ujunwa et al. (2012) in Nigeria, where ethnicity is measured using linguistic backgrounds and the names of directors. It is noted that some directors may not have names that explicitly indicate their ethnic background. The research examines the impact of including "language names of executives" on the quality of reporting, which is a novel aspect of ethnic diversity not widely addressed in existing literature.

4. Results and Discussion

4.1 Diagnostic tests

Table 3 presents an overview of our various diagnostic tests. Our Cameron & Trivedi test indicates a statistical significance of 0.000. Its further decomposition reveals the heteroskedasticity problem. The same goes for the Breusch-Pagan test (0.0140). Similarly, the Wooldridge test (0.0002) indicates that there is a serial correlation. Further, our Hausman test shows a p-value of 0.0688 in favour of the fixed effects. Thereafter, we carried out the Modified Wald test to detect heteroskedasticity in fixed effect: we obtain the value 8471.59 at 0.0000 statistical significance. To solve this heteroskedasticity problem, we, therefore, ran the robust fixed effect regression, with the results as shown in Table 5. This procedure is in consonance with Wooldrigde (2010) test for heteroskedasticity, utilising the Panel Corrected Standard Errors (PCSE) (Hoechle, 2007).

Also, our tests did detect the presence of cross-sectional dependence in the model, and heteroskedasticity and serial correlation problems in the panel. Therefore, we follow Bendickson and Chandler (2019) in utilising PCSE to estimate our fixed-effect model. The PCSE mitigates the cross-sectional dependence concern (Hoechle, 2007), and corrects for both heteroskedasticity and serial correlation problems (Bendickson & Chandler, 2019). The PCSE (xtpcse) function is obtainable in STATA software for data analysis.

Table 3: Diagnostic Tests

Tests	Chi-square	P
Cameron & Trivedi IM-test	493.79	0.0000
Breusch-Pagan test	6.04	0.0140
Wooldridge test	15.483	0.0002
Modified Wald test	8471.59	0.0000
Hausman test	30.06	0.0688
VIF		1.62
Pesaran's cross-sectional independence test	3.473	0.0005

Source: Diagnostics from Stata software

4.2 Correlation matrix

Table 4 of the study shows the variables of the correlation matrix. Consistent with our expectations, the results show that *ABNACC* (abnormal accruals) are negative and significantly correlate with *EDIV* (ethnic diversity, at 5%). This correlation indicates that an ethnically diverse board help in reducing abnormal accruals. However, the *GDIV* (dummy) variable is negative and insignificant. It means having at least one-woman director has no effect in curbing abnormal accruals, but the proportion of women directors, *GDIV (%)* does, at 5% significance. All the control variables are not significant except *BSIZE, BSH,* and *FSIZE.* This could mean, the size of a board and its shareholding, including firm size, effectively reduces abnormal accruals, whereas those that have been traded for a longer period irrespective of their return on assets and gearing level have rather increased their abnormal accruals. No multicollinearity was observed.

Table 4: Pairwise Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

ABN ACC	1.00								
GDIV (Dummy)	-0.03	1.00							
GDIV (%)	-0.08*	0.74*	1.00						
GDIV (Shannon)	0.02	0.65*	0.57*	1.00					
GDIV (Blau)	-0.06	0.31*	0.39*	0.44*	1.00				
EDIV (Dummy)	-0.12*	0.13*	0.15*	0.10*	0.07*	1.00			
EDIV (Shannon)	-0.09*	-0.03	-0.08*	-0.03	-0.09*	0.23*	1.00		
EDIV (Blau)	-0.11*	0.03	0.08*	0.04	-0.04	0.38*	0.22*	1.00	
CGEN	-0.04	0.33*	0.35*	0.16*	0.07*	0.07*	-0.09*	-0.03	1.00

WMULD	-0.00	0.63*	0.56*	0.55*	0.29*	0.09*	-0.04	0.03	0.21*	1.00									
BSIZE	-0.08*	0.19*	-0.03	0.19*	0.09*	0.08*	-0.01	0.00	0.01	0.12*	1.00								
BIND	-0.05	-0.01	-0.07*	0.05	0.17*	-0.02	-0.08*	-0.01	-0.01	-0.05	0.27*	1.00							
BMT	0.01	0.27*	0.19*	0.25*	0.19*	0.01	-0.11*	-0.06*	0.01	0.20*	0.17*	0.11*	1.00						
BSH	-0.11*	-0.11*	-0.12*	-0.24*	-0.17*	-0.09*	0.06	0.05	-0.12*	-0.13*	-0.11*	-0.17*	-0.15*	1.00					
MULD	0.04	-0.01	0.07*	0.05	-0.13*	-0.03	0.06	0.00	-0.04	-0.00	-0.29*	0.02	-0.01	-0.12*	1.00				
IOWN	-0.05	0.16*	0.18*	0.09*	0.24*	-0.01	-0.06	-0.02	0.06*	0.07*	0.16*	0.08*	0.30*	-0.18*	0.06	1.00			
FSIZE	-0.08*	0.22*	0.09*	0.24*	0.21*	0.07*	-0.02	-0.02	-0.00	0.14*	0.38*	-0.01	0.30*	-0.27*	-0.08*	.038*	1.00		
LEV	0.02	0.03	0.02	0.03	0.01	0.09*	-0.02	0.03	0.05	0.07*	-0.05	-0.02	-0.05	-0.12*	0.04	0.01	0.21*	1.00	
ROA	0.06	0.07*	0.07*	0.07*	0.06*	0.02	-0.05	-0.13*	0.08*	0.01	0.03	0.04	0.13*	-0.11*	0.00	0.17*	0.11*	-0.11*	1.00

LST AGE	0.05	-0.04	-0.04	0.03	0.06*	-0.04	-0.12*	-0.08*	-0.00	0.00	0.12*	0.16*	0.10*	-0.31*	0.19*	0.07*	0.01	0.18*	0.15*	1.00	
BIG4	-0.02	0.14*	0.13*	0.14*	0.16*	0.10*	-0.02	0.00	0.07*	0.08*	0.08*	0.15*	0.27*	-0.27*	0.04	0.45*	0.41*	0.19*	0.18*	0.15*	1.00

Notes: Table 4 reports the Pairwise correlations among the variables drawn from a sample observation of 960 firm-year, from 2012 to 2021. The variables are described in Table 1.

4.3 Multivariate result and discussion

Table 5 presents our main results. Based on our diagnostic tests, we ran a variant of the robust fixed effects regression using the PCSE estimator. We ascertain whether the Nigerian capital markets value board gender and ethnic diversity and whether this diversity affects the quality of financial reporting of listed firms. Our results show some negative coefficient and statistical significance for *GDIV (%)*: the proportion of the female gender on the corporate board, and *GDIV (Blau),* hence H_1 is supported, as in prior findings (Abbott et al., 2012). The Abbott *et al.* (2012) evidence showed that female presence on corporate boards lowers the likelihood of restatement, which in turn enhances FRQ. Our evidence is generally consistent with Ayadi et al. (2015), a Nigerian study that find that having women in management is associated with quality outcomes.

The study found that ethnic diversity in the stock market has a significant influence on financial reporting quality. Specifically, the variables EDIV (Dummy), EDIV (Shannon), and EDIV (Blau) were found to affect ABNACC (a proxy for FRQ) and support previous research. This suggests that having an ethnically diverse board can help reduce abnormal accruals and improve financial reporting quality. The study also found that having a female CEO (CGEN) is effective in curbing abnormal accruals. However, the control variables were not significant except for BSIZE, BIND, BSH, MULD, IOWN, and LEV.

Table 5: Regression results: Absolute abnormal accruals as dependent variable

VARIABLES	Expected Sign	Model 1 ABNACC	Model 2 ABNACC	Model 3 ABNACC
Intercept		0.174***	0.167***	0.164***
		(0.0066)	(0.0078)	(0.0072)
GDIV (Dummy)	-	0.0105***		
		(0.0028)		
GDIV (%)	-	-0.0518***		
		(0.0147)		
EDIV	-	-0.0140***		

(Dummy)				
		(0.0030)		
GDIV (Shannon)	-		-0.0023	
			(0.0091)	
EDIV (Shannon)	-		-0.0262*	
			(0.0141)	
GDIV (Blau)	-			-0.0585***
				(0.0107)
EDIV (Blau)	-			-0.0611***
				(0.0176)
CGEN	-	-0.0084**	-0.0101***	-0.0097***
		(0.0042)	(0.0034)	(0.0034)
WMULD	-	0.0032	0.0009	0.0047
		(0.0031)	(0.0039)	(0.0031)
BSIZE	-	-0.0015**	-0.0012*	-0.0015**
		(0.0007)	(0.0007)	(0.0007)
BIND	-	-0.0226**	-0.0198**	-0.0114
		(0.0091)	(0.0097)	(0.0090)
BMT	-	0.0001	0.0003	0.0002
		(0.0009)	(0.0009)	(0.0009)
BSH	-	-0.0122***	-0.0081**	-0.0081**
		(0.0035)	(0.0033)	(0.0033)
MULD	-	-0.0174**	-0.0148*	-0.0222**
		(0.0076)	(0.0085)	(0.0087)
IOWN	-	-0.0121	-0.0173**	-0.0133
		(0.0082)	(0.0080)	(0.0084)
FSIZE	-	-0.0013	-0.0011	-0.0006
		(0.0008)	(0.0009)	(0.0009)
LEV	+	0.0158***	0.0116***	0.0109**
		(0.0048)	(0.0042)	(0.0044)
ROA	-	0.0034	0.0033	0.0002
		(0.0049)	(0.0048)	(0.0049)
LSTAGE	-	-0.0001	-0.0000	-0.0000
		(0.0001)	(0.0001)	(0.0001)
BIG4	-	0.0034	0.0024	0.0022
		(0.0023)	(0.0025)	(0.0025)
YEAR_D		YES	YES	YES
FIRM_D		YES	YES	YES

Observations	960	960	960
R-squared	0.17	0.14	0.16
P-value	0.0000	0.0000	0.0000

Standard errors in parentheses * p<0.1, ** p<0.05, *** p<0.01.

4.4 Additional analyses and robustness test

The input discusses the importance of considering endogeneity when examining the relationship between female board members and financial reporting quality (FRQ). It identifies three sources of endogeneity: unobserved heterogeneity, dynamic endogeneity, and simultaneity. The study mentioned in the input focuses on simultaneity as the chosen approach. It also highlights that female board members are not randomly assigned to firms and are hired to fit certain roles. To mitigate endogeneity, the study utilizes reverse causality, as FRQ can potentially influence women's decision to join boards. Additionally, the appointment of women executives in Nigeria is tied to performance.

Similarly, it is possible that a director does not randomly join a firm, but perhaps joined based on ethnic affinity. And perhaps the FRQ or previous firm performance is a determinant of the presence of this director with ethnic affinity. This is also a reverse causality case. To alleviate this endogeneity concern, we utilised one-period lagged independent variables (Guest, 2019; Manita et al., 2018).

We employed three different model specifications to mitigate the potential endogeneity concern. Firstly, we follow Liu et al. (2014) and Manita *et al.* (2018) to use values for one year lagged of diversity board gender and a year lagged values of board individualities. This assumes that women directors would require some time to influence FRQ. Therefore, a panel data analysis, namely: the "firm fixed effects with lagged board variables" method, estimated with robust standard errors was carried out. The regression is as follows:

$$\begin{aligned} ABNACC_{it} = {} & \alpha_{it}0 + \beta_1 GDIV_{it-1} + \beta_2 EDIV_{it-1} + \beta_3 CGEN_{it-1} + \beta_4 WMULD_{it-1} \\ & + \beta_5 BSIZE_{it-1} + \beta_6 BIND_{it-1} + \beta_7 BMT_{it-1} + \beta_8 BSH_{it} + \beta_9 MULD_{it-1} + \\ & \beta_{10} IOWN_{it} + \beta_{11} FSIZE_{it} + \beta_{12} LEV_{it} + \beta_{13} ROA_{it} + \beta_{14} LSTAGE_{it} + \beta_{15} BIG4_{it} \\ & + YEAR\_D + FIRM\_D + \varepsilon_{it} \end{aligned} \quad (5)$$

Table 6: Regression results: Fixed effects with lagged board variables

VARIABLES	Model 1 ABNACC	Model 2 ABNACC	Model 3 ABNACC
Intercept	0.153***	0.152***	0.148***
	(0.0150)	(0.0132)	(0.0134)
GDIV (Dummy)	0.0073**		
	(0.0036)		
GDIV (%)	-0.0256		

	(0.0193)		
EDIV (Dummy)	-0.0081**		
	(0.0032)		
GDIV (Shannon)		0.0030	
		(0.0090)	
EDIV (Shannon)		-0.0282*	
		(0.0151)	
GDIV (Blau)			-0.0547***
			(0.0105)
EDIV (Blau)			-0.0520***
			(0.0184)
CGEN	-0.0083**	-0.0089***	-0.0083**
	(0.0039)	(0.0033)	(0.0033)
WMULD	0.0028	0.0022	0.0065**
	(0.0029)	(0.0037)	(0.0028)
BSIZE	-0.0013*	-0.0011*	-0.0014**
	(0.0007)	(0.0006)	(0.0006)
BIND	-0.0216**	-0.0214**	-0.0129
	(0.0097)	(0.0096)	(0.0093)
BMT	-0.0007	-0.0005	-0.0006
	(0.0009)	(0.0009)	(0.0009)
BSH	-0.0058	-0.0033	-0.0036
	(0.0043)	(0.0039)	(0.0037)
MULD	-0.0117	-0.0084	-0.0155*
	(0.0076)	(0.0086)	(0.0083)
IOWN	-0.0049	-0.0073	-0.0036
	(0.0081)	(0.0081)	(0.0083)
FSIZE	-0.0008	-0.0007	-0.0001
	(0.0008)	(0.0008)	(0.0008)
LEV	0.0156***	0.0127***	0.0121***
	(0.0049)	(0.0043)	(0.0045)
ROA	-0.0013	-0.0011	-0.0039
	(0.0044)	(0.0045)	(0.0045)
LSTAGE	-0.0000	-0.0000	-0.0000
	(0.0001)	(0.0001)	(0.0001)
BIG4	0.0008	0.0004	0.0001
	(0.0025)	(0.0025)	(0.0026)

YEAR_D	YES	YES	YES
FIRM_D	YES	YES	YES
Observations	960	960	960
R-squared	0.145	0.14	0.15
P-value	0.0000	0.0000	0.0000

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The variables are defined in Table 1.

Table 6 shows the result of the fixed effects with lagged board variables. The outcomes are normally consistent with our main analysis of Table 5. A notable difference is the improved statistical significance of WMULD (women multiple directorship) in Model 3.

Secondly, the use of abnormal accruals as a means for opportunism serves as a proxy for our dependent variable. We believe that this method adequately indicates whether gender and ethnicity influence financial reporting choices in absolute terms. In this section, however, we modified our model consistent with Labelle et al. (2010) to check for the strength of our analysis.

We ran a panel probit model with Stata as follows:

$$ABNACC_{it} = \alpha_{it}0 + \beta_1 GDIV_{it-1} + \beta_2 EDIV_{it-1} + \beta_3 CGEN_{it-1} + \beta_4 WMULD_{it-1} + \beta_5 BSIZE_{it-1} + \beta_6 BIND_{it-1} + \beta_7 BMT_{it-1} + \beta_8 BSH_{it} + \beta_9 MULD_{it-1} + \beta_{10} IOWN_{it} + \beta_{11} FSIZE_{it} + \beta_{12} LEV_{it} + \beta_{13} ROA_{it} + \beta_{14} LSTAGE_{it} + \beta_{15} BIG4_{it} + YEAR\_D + FIRM\_D + \varepsilon_{it} \quad (6)$$

where ABNACC = 1 for firms having high absolute abnormal accruals, and 0 for low absolute abnormal accruals. We utilise the mean average to partition between high and low abnormal accruals. The explanatory and control variables are measured as earlier defined in Table I of our Method section, except for the use of their lagged values.

The study measures the dependent variable for 2010-2018 and explanatory and control variables for 2012-2021, using an alternative measure to avoid endogeneity problems. To address concerns about a causal relationship, a proxy for FRQ and lagged values for explanatory variables were introduced. The results show consistent results across different proxies and control variables.

We made replacements for some of our control variables used in the main model. Specifically, we added firm characteristics variables such as firm age (FAGE) instead of listing age (LSTAGE) and return on equity as (ROE) in place of return on assets as (ROA). Overall, the empirical results remain the same.

Table 7: Regression results: Using probit model

VARIABLES	Model 1 Probit ABNAC	Model 1 Average marginal	Model 2 Probit ABNAC	Model 2 Average marginal	Model 3 Probit ABNAC	Model 3 Average marginal

	C	effect	C	effect	C	effect
Intercept	1.301***	1.301***	1.427***	1.427***	1.199***	1.199***
	(0.429)	(0.429)	(0.445)	(0.445)	(0.424)	(0.424)
GDIV (Dummy)	0.260*	0.260*				
	(0.147)	(0.147)				
GDIV (%)	-1.560***	-1.560***				
	(0.528)	(0.528)				
EDIV (Dummy)	-0.153	-0.153				
	(0.0984)	(0.0984)				
GDIV (Shannon)			0.283	0.283		
			(0.436)	(0.436)		
EDIV (Shannon)			-1.251**	-1.251**		
			(0.493)	(0.493)		
GDIV (Blau)					0.250	0.250
					(0.543)	(0.543)
EDIV (Blau)					-1.380**	-1.380**
					(0.680)	(0.680)
CGEN	-0.186	-0.186	-0.272**	-0.272**	-0.247**	-0.247**
	(0.122)	(0.122)	(0.116)	(0.116)	(0.115)	(0.115)
WMULD	0.236*	0.236*	0.105	0.105	0.141	0.141
	(0.137)	(0.137)	(0.126)	(0.126)	(0.114)	(0.114)
BSIZE	-0.0283	-0.0283	-0.0161	-0.0161	-0.0152	-0.0152
	(0.0227)	(0.0227)	(0.0220)	(0.0220)	(0.0221)	(0.0221)
BIND	-0.722**	-0.722**	-0.731**	-0.731**	-0.677*	-0.677*
	(0.350)	(0.350)	(0.350)	(0.350)	(0.354)	(0.354)
BMT	0.0309	0.0309	0.0232	0.0232	0.0283	0.0283
	(0.0344)	(0.0344)	(0.0342)	(0.0342)	(0.0339)	(0.0339)
BSH	-0.636***	-0.636***	-0.565***	-0.565***	-0.558***	-0.558***
	(0.204)	(0.204)	(0.205)	(0.205)	(0.204)	(0.204)
MULD	0.595*	0.595*	0.625*	0.625*	0.611*	0.611*
	(0.343)	(0.343)	(0.345)	(0.345)	(0.348)	(0.348)
IOWN	-0.318	-0.318	-0.454	-0.454	-0.445	-0.445
	(0.311)	(0.311)	(0.307)	(0.307)	(0.309)	(0.309)
FSIZE	-0.0491*	-0.0491*	-0.0435	-0.0435	-0.0443	-0.0443
	(0.0294)	(0.0294)	(0.0293)	(0.0293)	(0.0293)	(0.0293)
LEV	0.0870	0.0870	0.0784	0.0784	0.0914	0.0914

	(0.222)	(0.222)	(0.221)	(0.221)	(0.220)	(0.220)
ROE	0.488**	0.488**	0.485**	0.485**	0.441**	0.441**
	(0.200)	(0.200)	(0.200)	(0.200)	(0.201)	(0.201)
FAGE	-0.00162	-0.00162	-0.00203	-0.00203	-0.00154	-0.00154
	(0.00237)	(0.00237)	(0.00238)	(0.00238)	(0.00237)	(0.00237)
BIG4	-0.0234	-0.0234	-0.0273	-0.0273	-0.0318	-0.0318
	(0.103)	(0.103)	(0.102)	(0.102)	(0.102)	(0.102)
P-value	0.000		0.000		0.000	
Pseudo R-square	0.04		0.03		0.03	
Observations	960	960	960	960	960	960

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The variables are defined in the Table I except that here we modified the *ABNACC* to a probit measure, the use of lagged explanatory variables, and substitution of *ROA* and *LSTAGE* with *ROE* and *FAGE* respectively.

The probit regression results in Table 7 are in general respect consistent with our main result.

The input describes a research methodology used to estimate a proxy for FRQ (frequency of financial restatements) and abnormal accruals. The researchers followed a study by Hooghiemstra et al. (2019) and used the two-stage least squares (2SLS) method. They modified their abnormal accruals measure to a dummy variable, dividing it into high and low abnormal accruals based on its mean value. The researchers included explanatory and control variables in their regression analysis and used

5. Conclusion

This study investigates the impact of the gender and ethnic diversity on corporate boards on financial reporting quality. Results show a significant reduction in abnormal accruals in firms with ethnic and gender diversity. The study uses the agency theory to conclude that female gender and ethnic diversity on a corporate board demonstrate a firm's commitment to transparency, objectivity, and quality information for stakeholders. However, the study's proxies are limited, and alternative measures like Shannon Diversity Index and Blau's Index could be used. Future research could explore moderating effects of variables like institutional ownership, board shareholding, or firm size, and explore other markets with distinct corporate governance legislation and institutional characteristics.

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