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Audit Committee Diversity and Financial Statement Fraud in Bank

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Abstract: Fraud remains a challenge for various organizations. One type of fraud with significant economic impact is Financial Statement Fraud (FSF). This study empirically investigates the influence of audit committee diversity on FSF, emphasizing four attributes: education level, gender, tenure, and age. The sample comprises 89 banks in Indonesia observed over 15 years (2009–2023). Data were analyzed using Random-effect GLS regression. The findings indicate that banks with audit committee members exhibiting high diversity in gender and educational levels can reduce FSF. However, high age diversity leads to communication and coordination issues, thus diminishing oversight quality and subsequently increasing FSF. We found no impact of tenure diversity among audit committee members on FSF. The results remain robust after controlling for majority ownership factors that may cause agency conflict between majority and minority ownership. This study provides valuable insights for bank owners when selecting audit committee members. It emphasizes the importance of considering gender, education level, and age backgrounds, as these factors significantly impact the effectiveness of audit committee members in fulfilling their responsibilities. Additionally, the bank regulators in enhancing corporate governance, highlighting the need to regulate the gender, age, and education backgrounds of audit committee members to reduce instances of financial statement fraud (FSF).

Keywords: fraud; audit committee members; diversity; resources dependent theory

1. Introduction

Fraud continues to be a significant issue faced by financial institutions. The literature identifies three types of fraud: financial statement fraud (FSF), corruption, and asset misappropriation. According to the ACFE survey, among these three types of fraud, FSF has the most substantial economic impact FSF (Toit, 2023); (Anisykurlillah & Januarti, 2022). Furthermore, the ACFE survey from 2012 to 2020 indicates an upward trend in FSF occurrences (Jan, 2018). Based on the subject of fraud, the ACFE survey reveals that the highest incidence occurs in banking institutions (ACFE, 2022).

Table 1. Cases of Financial Statement Fraud (FSF).

	2008	2010	2012	2014	2016	2018	2020	2022
Percentage of FSF cases	4.8%	10.3%	7.6%	9.0%	9.6%	10.0%	10.0%	9.0%

To explain Financial Statement Fraud (FSF), much of the literature emphasizes the effectiveness of corporate governance (CG). This emphasis arises from the corporate governance codes issued by regulators worldwide in response to financial scandals (Salleh & Othman, 2016). (Halbouni et al., 2016) argue that good corporate governance should be a primary objective for senior management, as poor governance negatively impacts the company's potential and leads to a wave of corporate

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financial scandals (Halbouni et al., 2016); (Fich & Shivdasani, 2007); (Shan et al., 2013)). Previous literature addressing the role of CG in FSF has focused on the functions of the board of commissioners and directors (Liu et al., 2023); (Ebaid, 2023); (Khoufi & Khoufi, 2018); (Salleh & Othman, 2016) (Matoussi & Gharbi, 2011) (Fich & Shivdasani, 2007) (Uzun et al., 2004). However, we contend that the Board of Commissioners and Board of Directors do not have a primary role in controlling FSF. The Financial Services Authority Regulation No. 55/POJK.04/2015 states that the audit committee is responsible for reviewing the implementation of audits by internal auditors and overseeing the follow-up actions taken by the board of directors based on internal audit findings. Nonetheless, empirical evidence regarding the impact of the audit committee on FSF remains limited.

This study contributes to expanding previous research in three significant ways. First, we investigate the contribution of audit committee attributes to Financial Statement Fraud (FSF). Various approaches have been previously employed to explain fraud, including the Fraud Triangle Theory (Nurlaeliyah & Anisykurlillah, 2017) (Muhandisah & Anisykurlillah, 2016), the Pentagon Theory (Dewi & Anisykurlillah, 2021), and the Diamond Theory (Arfiyadi & Anisykurlillah, 2016). However, these theories predominantly lean towards respondent perception approaches. Additionally, fraud disclosure research based on respondent perceptions is susceptible to response bias, as respondents may tend to conceal facts about wrongdoing that may exist in their environment.

Furthermore, the FSF approach is more suitable for uncovering fraud in the form of corruption and asset misappropriation, as these actions are typically carried out individually. Other researchers have emphasized the effectiveness of corporate governance (CG) as a factor that can control FSF (Anisykurlillah et al., 2020) (Mukhibad et al., 2021). However, prior studies utilized CG indicators that do not directly oversee FSF cases, particularly focusing on the audit committee. This study uses the audit committee as a factor to explain FSF, emphasizing the various attributes of its members.

The second contribution of this study is the investigation of the influence of female audit committee members on Financial Statement Fraud (FSF). Resource Dependence Theory (RDT) posits that women tend to be more effective in monitoring directors' performance (Jabari & Muhamad, 2020). This effectiveness arises from women's diverse perspectives before making decisions. Women are also considered more diligent in attending board meetings (Adams & Ferreira, 2009) (Deloitte, 2019), more meticulous in oversight, and cautious in avoiding risks (Sila et al., 2016), as well as effective in executing supervision (Jabari & Muhamad, 2020). Furthermore, (Wang et al., 2022) and (Cumming et al., 2015) provide evidence that the representation of female leaders in companies increases the likelihood of fraud detection, thereby reducing the propensity of companies to commit fraud.

Third, this study provides empirical evidence of the role of gender in fraud through various proxies. Resource Dependence Theory (RDT) suggests that women tend to avoid risky policies (Sila et al., 2016) and are considered more effective in substantively monitoring directors' performance (Jabari & Muhamad, 2020), as well as frequently attending board meetings, thereby reducing fraud (Wang et al., 2022) (Cumming et al., 2015). However, the impact of gender diversity on fraud lacks consensus; for instance, (Kaplan et al., 2009) found no relationship between gender and fraud. Following the perspective of (Cardillo et al., 2021), the inconsistency in the literature regarding the influence of gender on fraud may be due to the proxies used for measuring gender diversity. Researchers have utilized four proxies to assess gender: dummy variables, percentage of women (Muhammad et al., 2022) (Sattar et al., 2022), Blau index (Bruna et al., 2019) (S. Ali et al., 2022), and Shannon index (Oradi & Izadi, 2020) (Aggarwal et al., 2019). This study employs four scenarios in measuring gender to provide evidence on whether the inconsistency in previous research results is attributed to differences in proxies.

2. Theoretical Background and Hypothesis

2.1. Fraud Theory and Corporate Governance

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FSF cases represent a type of fraud that tends to be on the rise (Jan, 2018) and causes greater losses than other types of fraud (Toit, 2023) (Anisykurlillah & Januarti, 2022). The entities most affected by FSF are banking institutions (ACFE, 2022). To explain this fraud, established fraud theories have been developed by researchers, notably the Fraud Triangle Theory introduced by Donald Cressey in 1953 (Rohman et al., 2023). This theoretical approach posits that fraud is influenced by pressure, opportunity, and rationalization. The Fraud Scale developed by Steve Albrecht, Keith Howe, and Marshall Romney in 1984 outlines that fraud is affected by three indicators: pressure, opportunity, and replacing rationalization with personal integrity (Saluja et al., 2021). Bologna developed the GONE Theory and the Diamond Theory in 1999. Finally, the ABC Model and MICE Model were introduced by Crowe and Kranacher in 2011. Following (Anindya & Adhariani, 2019), these various fraud theories are extensions of the Fraud Triangle, indicating that fraudulent behavior is triggered by incentives or pressures, opportunities, rationalizations, or supportive attitudes. Additionally, this theory emphasizes individual perception, making it more suitable for identifying individuals who commit fraud.

FSF is a type of fraud carried out institutionally, involving several individual components within a company's key organs. The International Standards on Auditing (ISA 240, 2009, p. 167) state that financial reporting containing fraud involves intentional misstatements, including omissions or material disclosures intended to deceive users of financial statements. Management may be motivated to commit FSF to maintain their status, achieve higher stock prices, demonstrate compliance with financing covenants, meet company projections and investor expectations, and obtain financing or more favorable terms on existing financing (Repousis, 2016). Since FSF is a criminal act perpetrated by critical company organs, the effectiveness of corporate governance (CG) serves as a solution to control FSF. According to (McLaughlin et al., 2021), a series of corporate scandals, starting with Enron and leading to the 2008 financial crisis, has increased focus on corporate governance to protect shareholders. One of the critical components of corporate governance is the Board of Directors (BOD), which prior research has emphasized as crucial in safeguarding the company from FSF (Liu et al., 2023) (Ebaid, 2023) (Khoufi & Khoufi, 2018) (Salleh & Othman, 2016) (Matoussi & Gharbi, 2011) (Fich & Shivdasani, 2007) (Uzun et al., 2004). However, the board primarily responsible for evaluating corporate reporting is the audit committee.

2.2. Hypothesis Development

The input-process-output approach posits that each board member's internal attributes influence the board's decision-making process. The board is a group of individuals with a crucial role in collectively making decisions and overseeing organizational policies (Mukhibad et al., 2024a). In the decision-making process, each member will coordinate, express their opinions, viewpoints, and predictions regarding future conditions concerning various decision alternatives. The quality of their decisions is influenced by inputs, which consist of board attributes. Based on this, (Mukhibad et al., 2024a), (Yadav & Prashar, 2023), (Cicchiello et al., 2021), and (Goyal et al., 2019) emphasize the attributes of the board that affect the quality and process of decision-making, which in turn impacts board outcomes and organizational performance. (Torchia et al., 2015) categorize the attributes influencing board decision quality into deep and surface-level diversity. Attributes classified as deep-level diversity include educational background, socioeconomic background, knowledge, skills, values, attitudes, beliefs, and personality, whereas attributes classified as surface-level diversity include gender, age, and nationality (Mukhibad et al., 2024a) (F. Ali et al., 2022).

Furthermore, the resource-based theory posits that the board is a company resource that supports achieving organizational goals. Board attributes significantly influence their ability to meet these goals, establish competitive advantages, and ultimately enhance organizational performance. The resource-based view asserts that organizations can increase their potential for creating a competitive advantage through heterogeneity in resources and capabilities (De La Luz Fernández-Alles & Valle-Cabrera, 2006). In this concept, the board acts as an organizational resource, and the attributes of board members can influence the organization's competitive advantage. Following (Bin

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Khidmat et al., 2020), we utilize the resource-based theory as a foundation for developing hypotheses regarding the impact of board diversity on organizational performance.

This study utilizes surface- and deep-level diversity to explain the effectiveness of audit committee members in controlling Financial Statement Fraud (FSF). We use gender and age diversity as indicators of surface-level diversity. Additionally, we employ education level and tenure diversity as indicators of deep-level diversity.

Previous literature reports significant differences between male and female board members. (Baghdadi et al., 2023) investigated the relationship between gender diversity on boards and managerial capability to convert corporate resources into revenue. Using a sample of US companies, they reported a positive relationship between female directors on boards and managerial capability. Additionally, during critical times, female directors are more conducive in fulfilling monitoring roles to enhance managerial capability. (García-Meca et al., 2015) studied 159 banks in Canada, France, Germany, Italy, the Netherlands, Spain, Sweden, the UK, and the US during the period of 2004–2010, reporting that gender diversity increases bank performance. A board with women provides more valuable resources, which should improve firm performance (García-Meca et al., 2015). Banks with female board members are considered advantageous because women tend to be diligent monitors of management (Baghdadi et al., 2023) (Jabari & Muhamad, 2020) and support management with greater skills, qualifications, and a broader range of perspectives (D. Kim & Starks, 2016). Based on previous research findings, (Nguyena et al., 2020) recommend that firms should recruit female board members because women can help make more balanced and better decisions.

The bank's CG structure stipulates that the board of commissioners appoints an audit committee responsible for reviewing and ensuring the quality of financial information presented by the bank. In this review process, the audit committee performs oversight functions, and the presence of female audit committee members enhances the quality of oversight. (Joecks et al., 2019) identify three key aspects of women's roles that contribute to improving oversight and corporate governance compared to men. First, women on boards act as (unique) experts by being highly qualified and bringing new perspectives and additional expertise to the boardroom. Second, women help to objectify and de-emotionalize boardroom discussions. Third, women serve as mediators who assist in balancing different opinions on the board. Based on this argument, we develop the hypothesis:

H1: Gender diversity in the audit committee has a negative impact on Financial Statement Fraud (FSF).

The second indicator of attributes is education level. Based on human capital theory, education is a primary pathway for individuals to enhance their skills, knowledge, and capabilities. The educational backgrounds of board members increase knowledge, expertise, and problem-solving skills (Fang et al., 2018). In the context of our research, the education level of audit committee members enhances the quality of the review of accounting information presented by directors, thereby helping to prevent FSF. Upper Echelons Theory (UET) supports this argument, suggesting that boards with higher education levels improve the effectiveness and quality of oversight by audit committee members, thus helping to prevent banks from committing FSF.

In the context of Upper Echelons Theory (UET), the chair of the audit committee is responsible for the governance and management activities of the company and possesses specific traits, skills, experiences, and characteristics that shape how they govern or manage, ultimately influencing organizational outcomes. In other words, the decisions and policies made by audit committee members are influenced by their characteristics, including their experiences, traits, and skills.

(Bilal et al., 2023) have empirically demonstrated that the postgraduate qualifications of audit committee members are more effective in mitigating earnings management. Additionally, previous literature reports that education level enhances the effectiveness and quality of board decision-making, subsequently improving financial performance (Mukhibad et al., 2024a) (Saidu, 2019) and reducing financial distress (S. Ali et al., 2022). Following (Mukhibad et al., 2024b), (Mukhibad et al., 2024a), and (Nguyena et al., 2020), the skills and expertise of audit committee members are based on

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their education level, which in turn affects the board's creativity in decision-making. The education level of the audit committee plays an advisory and oversight role to ensure that financial management and control are effective, thus reducing the likelihood of banks committing FSF.

H2: Educational diversity in the audit committee has a negative impact on Financial Statement Fraud (FSF).

The third indicator of audit committee diversity is board tenure. Board tenure is often associated with commitment, experience, and decision-making patterns (Sun & Bhuiyan, 2020). Long-tenured board members are linked to familiarity with an industry (Vafeas, 2003) and can also bring expertise and confidence in investment decisions (K. Kim et al., 2014). (Ji et al., 2021) provide empirical evidence supporting this argument. Using data from companies in 37 countries, they report that board tenure diversity leads to lower stock return volatility. (Tejerina-Gaite & Fernández-Temprano, 2021), using Spanish-listed companies from 2005 to 2015 as their research subject, report that longer tenure on the external board enhances firm performance.

However, (Ji et al., 2021) argue that board tenure is often deemed to be a double-edged sword. Long tenure is frequently associated with increased experience, commitment, and the board's ability to carry out its responsibilities. Nonetheless, lengthy tenure can reduce board independence, diminish the quality of oversight, and ultimately lead to lower firm performance. (Al-Jaifi et al., 2023), in their study of 14,878 firm-year observations in Asia-Pacific countries, report that long tenure on the board enhances a management-friendly bias, thereby reducing firm performance. Nevertheless, in the context of our research, the audit committee has a specific task: to evaluate and ensure the reliability of the financial information presented by the directors, and long tenure supports the ability of audit committee members to prevent FSF. We develop the hypothesis:

H3: Board tenure has a negative impact on Financial Statement Fraud (FSF).

The fourth indicator of diversity is the age of audit committee members. Board age is often linked to increased experience in various areas (Tejerina-Gaite & Fernández-Temprano, 2021). Older board members are associated with more excellent expertise, skills, and ability to make strategic decisions for the bank, subsequently enhancing financial performance (Arioglu, 2021). Thus, board age positively impacts firm performance (Al-Jaifi et al., 2023) (Arioglu, 2021).

However, other literature reports that age can have a negative impact on the board's decision-making ability. Older boards tend to resist change, while their younger counterparts are associated with greater strategic shifts (Tejerina-Gaite & Fernández-Temprano, 2021). (Berger et al., 2014) report that older boards possess better risk knowledge, which can lead younger board teams to adopt riskier policies. In the context of our research, an increase in the age of audit committee members may reduce their diligence, thereby diminishing their ability to identify Financial Statement Fraud (FSF).

H4: Board age positively impacts Financial Statement Fraud (FSF).

3. Method

The subject of this research is banks in Indonesia, observed from 2009 to 2022. According to data from the Financial Services Authority (OJK), there were 113 banks in 2022. The data, meticulously sourced from annual reports and financial statements of the banks, was collected manually, ensuring its accuracy and reliability.

Following (Dechow et al., 2011), this study uses the f-score as an indicator to measure Financial Statement Fraud (FSF). This indicator is utilized because the f-score develops a scaled probability that can be a warning sign for earnings misstatements (Dechow et al., 2011). The f-score is also an extension of the Beneish m-score. The f-score is calculated using the formula:

$$F - Score = Accrual\ Quality\ (AQ) + Financial\ Performance(FP)$$

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$$\text{AQ} = \frac{\Delta WC + \Delta NCO + \Delta FIN}{Average\ of\ Total\ Assets}$$

$$\text{FP} = \Delta Receivable + \Delta Inventories + \Delta Cash\ sales + \Delta Earning$$

$$WC = current\ assets - current\ liabilities$$

The diversity of audit committee members is measured using four attributes. The first attribute is gender. Gender diversity of the audit committee (AC_GENDER) is measured using a dummy variable, with a score of 1 for banks with female audit committee members and 0 for banks that do not have female audit committee members. The second attribute is the diversity of education levels in the audit committee (AC_EDUC). The average score of the educational levels of audit committee members measures AC_EDUC. Following (Mukhibad et al., 2023), we use five categories to calculate education level: score 1 for diploma and below, score 2 for Bachelor's, score 3 for professional education, score 4 for Master's, and score 5 for PhD. The third attribute is tenure diversity (AC_TENURE), measured by the standard deviation of the tenure of audit committee members. The fourth attribute is the age diversity of audit committee members (AC_AGE), measured by the standard deviation of the ages of audit committee members.

The control variables used include characteristics of bank corporate governance and financial variables. The characteristics of bank corporate governance include the number of audit committee members (AC_SIZE), the number of board of commissioners (BOC_SIZE), and the number of directors (DIR_SIZE). These three corporate governance indicators are used as control variables because, based on agency theory, banks with larger boards increase their effectiveness in supervising the bank. A larger board size allows banks to appoint members with diverse backgrounds, skills, and experiences, enhancing the board's effectiveness in fulfilling its duties (Mishra et al., 2024). The agency conflict between agents and principals, which creates information asymmetry, diminishes when most principals act as agents. Based on this argument, we use director ownership (DIROWN) as a control variable. Finally, we use the loan-to-asset ratio (LOANRATIO) and total assets (SIZE) to control for the bank's financial characteristics.

The research data is analyzed using panel data analysis. In this test, the Lagrange test and Hausman test will be conducted to determine the recommended analysis method between random effects and fixed effects. Classical assumption tests include tests for multicollinearity, heteroskedasticity, and autocorrelation. The multicollinearity test is performed by examining the correlation between independent variables and the variance inflation factor (VIF). The Wooldridge test is used to detect autocorrelation in the model, and the Wald test is applied to identify issues of heteroskedasticity in the model.

The following equations are established to achieve the research objectives:

$$\text{F-Score}_{i,t} = \beta_0 + \beta_1 \text{AC\_GEN}_{i,t} + \beta_2 \text{AC\_EDUC}_{i,t} + \beta_3 \text{AC\_TENURE}_{i,t} + \beta_4 \text{AC\_AGE}_{i,t} + \text{control}_{i,t} + \varepsilon$$

4. Research Results and Discussion

4.1. Descriptive Analysis

Table 1 presents the descriptive statistics for all variables. The average f-score is 1.0794, with a minimum value of -8.0822 and a maximum value of 5.1709. These results indicate that the sample has a relatively homogeneous financial statement fraud risk (FFR) level, with a standard deviation of 1.6337 and an average level of 1.0794.

Table 1. Descriptive Statistics.

Variables	Mean	Std. Dev.	Min.	Max.

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F-Score	1.0794	1.6337	-8.0822	5.1709
AC_TENURE	2.0199	1.8480	0.0000	12.2963
AC_AGE	7.9496	5.1815	0.0000	31.0645
AC_GENDER	0.4296	0.4939	0.0000	1.0000
AC_EDUC	3.2427	0.7477	1.5000	5.0000
BOC_SIZE	4.0886	1.6129	2.0000	11.0000
DIR_SIZE	5.5842	2.3244	3.0000	15.0000
AC_SIZE	3.6569	1.0420	2.0000	8.0000
SIZE	30.5338	1.6815	25.2298	35.3154
LOANRATIO	-0.4560	0.8665	-12.0387	6.7779
DIROWN	0.9462	4.9437	0.0000	74.7000

The gender diversity of the audit committee shows an average score of 0.4296; this indicates that 42.96% of banks in Indonesia have female members on their audit committees. However, Table 1 also reports that the gender diversity score has a minimum value of zero, indicating that there are samples with audit committees consisting entirely of male members.

The indicator for measuring audit committee members' educational diversity, using the committee's average education level, shows an average score of 3.2427, with a standard deviation of 0.7477. The minimum and maximum scores are 1.555 and 5, respectively. These results indicate that the sample has audit committee members with an average education level of a bachelor's degree. The maximum score of 5 indicates that there are samples with audit committees consisting entirely of members holding doctoral degrees. Meanwhile, the minimum score of 1.500 indicates that there are samples with audit committee members with a diploma level of education.

The indicator for measuring the diversity of audit committee members' experience shows an average score of 2.0199, with a minimum score of 1.8480 and a maximum score of 12.2963. These results indicate that the sample has an experience diversity level among audit committee members of 2.0199. However, Table 1 also reports a minimum score of 0 for the experience diversity variable, indicating that there are banks with audit committee members with the same experience level.

4.2. Research Findings and Discussion

The first step in conducting a panel data regression test is to determine whether the data is pooled or random. To accomplish this, the study employs the Breusch and Pagan Lagrangian multiplier test. Table 2 shows that the results of the Breusch and Pagan Lagrangian multiplier test yield a chibar2 score of 154.06 with a significance level of 0.000. These findings indicate that the data is random.

Table 2. Results of regression analysis.

FSCORESFRAUD	Coef.	Std. Err.	P>z
AC_TENURE	-0.7796	0.5475	0.1540
AC_AGE	0.7587	0.4502	0.0920
AC_GENDER	-6.6770	3.9871	0.0940
AC_EDUC	-0.1396	0.0079	0.0000
BOC_SIZE	0.2088	0.6248	0.7380
DIR_SIZE	1.0871	1.4760	0.4610
AC_SIZE	0.7804	1.1151	0.4840
SIZE	-0.3760	1.4189	0.7910
LOANRATIO	-0.7924	0.6568	0.2280
DIROWN	0.1399	0.0780	0.0730
_cons	1.2769	29.2821	0.9650
Breusch and Pagan Lagrangian multiplier test			0.31
Modified Wald test			2008***
Wooldridge test			19.851***

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Hausman	4.36
Wald Chi2	24.416***
R-sq	0.008

Breusch and Pagan Lagrangian multiplier and Hausman test to determine regression testing using common fixed, or random effects. Modified Wald and Wooldridge test to test heteroskedasticity and autocorrelation. Robust standard error to overcome heteroskedasticity and autocorrelation problems in the model (Hoechle, 2007). ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Source: Authors' own work.

The second step of the panel data regression test is to choose between the fixed effect model and the random effect model. To select one of these as the basis for data analysis, the Hausman test is conducted. The results of the Hausman test indicate a chi2 score of 6.46 with a probability of 0.6934. This suggests that the data is random and recommends conducting the analysis using the random effect model.

Table 2 reports the coefficient score for gender diversity among audit committee members at -6.6770, with a p-value of less than 0.1. A positive F-score indicates that the bank has a potential for financial statement fraud (FSF). At the same time, a negative coefficient score suggests that gender diversity reduces the likelihood of such fraud. Thus, our first hypothesis is accepted. Banks with female board members are seen as advantageous because women tend to be diligent monitors of management (Baghdadi et al., 2023) (Jabari & Muhamad, 2020) and provide management with more excellent skills, qualifications, and a broader range of perspectives (D. Kim & Starks, 2016). Additionally, firms should recruit female board members because women can contribute to more balanced and better decision-making (Nguyena et al., 2020). In the context of our study, the educational level of audit committee members enhances the quality of the review of financial information presented by the directors, thereby helping to prevent FSF. We also support the findings of (Joecks et al., 2019), which highlight three key roles of women that can enhance corporate governance: (1) as unique experts who are highly qualified and add new perspectives and additional expertise to the boardroom; (2) as individuals who objectify and de-emotionalize discussions in the boardroom; and (3) as mediators who help balance differing opinions among board members.

The diversity of education levels among audit committee members has a coefficient of -0.1396 and a p-value of less than 0.01. This finding indicates that higher scores in education diversity among audit committee members lead to lower financial statement fraud (FSF) scores. Our results suggest that education diversity reduces the potential for banks to engage in FSF, aligning with our hypothesis. This outcome supports Upper Echelon Theory (UET), which posits that boards with higher education levels enhance the effectiveness and quality of oversight by audit committee members, thereby helping to prevent FSF. In the context of UET, the audit committee chair is responsible for governance and management activities, possessing specific characteristics, skills, experiences, and traits that influence how they manage, ultimately affecting organizational outcomes. In other words, the decisions and policies made by audit committee members are shaped by their characteristics, including their experiences, traits, and skills. Following (Mukhibad et al., 2024b), (Mukhibad et al., 2024a), and (Nguyena et al., 2020), the skills and expertise of audit committee members are based on their education levels, which further influence the board's creativity in decision-making. In our context, the education level of the audit committee plays an advisory and oversight role to ensure effective financial management and control, subsequently reducing the likelihood of banks engaging in FSF. Our findings support (Bilal et al., 2023), which states that the postgraduate qualifications of audit committee members are more effective in mitigating earnings management. Additionally, our results are consistent with previous literature indicating that higher education levels enhance the effectiveness and quality of board decision-making, thereby improving financial performance (Mukhibad et al., 2024a) (Saidu, 2019) and reducing financial distress (S. Ali et al., 2022).

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The coefficient score for the tenure diversity of audit committee members is -0.7796, with a p-value greater than 0.1. This result indicates that the tenure diversity among audit committee members has no significant effect on financial statement fraud (FSF). Board tenure is often associated with commitment, experience, and decision-making patterns (Sun & Bhuiyan, 2020). Long-tenured board members are linked to greater familiarity with an industry (Vafeas, 2003) and can also contribute expertise and confidence in investment decisions (K. Kim et al., 2014). However, in the context of corporate governance (CG) in Indonesia, regulators limit the tenure of audit committees, suggesting that longer tenure does not enhance their commitment, expertise, or skills, nor does it improve the quality and effectiveness of oversight. Broadly, our findings support (K. Kim & Yang, 2014), who noted that no study currently explains director tenure's effects on financial reporting quality.

The coefficient score for the age diversity of audit committee members is 0.7587, with a p-value less than 0.1. This result indicates that age diversity among audit committee members positively affects financial statement fraud (FSF). Board age is often associated with experience; however, an increase in the age of committee members may lead to decreased diligence, subsequently reducing their ability to identify FSF. Older board members are typically linked to more excellent expertise and skills in making strategic decisions for the bank, which can enhance financial performance (Arioglu, 2021). Thus, board age positively correlates with firm performance (Al-Jaifi et al., 2023) (Arioglu, 2021).

Nevertheless, in the context of decision-making processes, the age differences among audit committee members can lead to varied skills, views, and opinions regarding the bank's policies. These differences can hinder communication and coordination among members, ultimately decreasing the quality of decisions and board outcomes (Ji et al., 2021). Board members of varying ages bring heterogeneous knowledge and perspectives, which can exacerbate internal conflict and divisiveness, obstructing effective coordination and communication during decision-making (Ji et al., 2021). Under these circumstances, the decision outcomes of the audit committee may become increasingly uncertain and risky due to challenges in reaching a consensus, thereby reducing the quality of oversight in financial information review and increasing the potential for FSF.

4.3. Robustness Test

In the context of agency theory type 2, majority owners can exert influence over management policies through their ability to elect directors who align with their preferences. This opportunity allows majority owners to pressure the board to adopt policies that benefit their interests. Most owners may encourage the board to report accounting performance in a manner that serves their interests. To examine the impact of majority ownership on financial statement fraud (FSF) within the model, we have included it as a control variable. Table 3 presents the regression analysis results with the addition of majority ownership as a control factor.

Table 3. Regression analysis results.

FSCORESFRAUD	Coef.	Std. Err.	P>z
AC_TENURE	-0.7643	0.5555	0.1690
AC_AGE	0.7756	0.4475	0.0830
AC_GENDER	-7.0267	4.1005	0.0870
AC_EDUC	-0.1408	0.0082	0.0000
BOC_SIZE	0.1671	0.6220	0.7880
DIR_SIZE	1.0838	1.5094	0.4730
AC_SIZE	0.8022	1.1544	0.4870
SIZE	-0.3553	1.4582	0.8070
LOANRATIO	-0.8652	0.6266	0.1670
DIROWN	0.1657	0.0774	0.0320
MAJOROWN	0.0395	0.0333	0.2360
_cons	-1.8355	31.0400	0.9530

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Breusch and Pagan Lagrangian multiplier test	0.20
Modified Wald test	1.208***
Wooldridge test	19.654***
Hausman	5.97
Wald Chi2	26.139***
R-sq	0.008

Breusch and Pagan Lagrangian multiplier and Hausman test to determine regression testing using common fixed, or random effects. Modified Wald and Wooldridge test to test heteroskedasticity and autocorrelation. Robust standard error to overcome heteroskedasticity and autocorrelation problems in the model (Hoechle, 2007). ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Source: Authors' own work.

Table 3 shows that gender diversity has a coefficient of -7.0267 with a p-value of 0.087, while the diversity of educational levels among audit committee members results in a coefficient of -0.1408 with a p-value of 0.000. These findings reinforce those in Table 2, indicating that banks with female audit committee members and higher education levels are less likely to engage in financial statement fraud (FSF). Meanwhile, the tenure diversity of audit committee members has a coefficient of -0.7643 (p-value of 0.1690), and the age diversity shows a coefficient of 0.7756 (p-value of 0.0830). This supports the results from Table 2, suggesting that age diversity among audit committee members leads to coordination and communication issues, thereby diminishing the quality of financial information oversight and increasing FSF risks. Additionally, the diversity of experience within the audit committee does not significantly influence their effectiveness in controlling FSF, likely due to regulatory restrictions on audit committee tenure in Indonesia, which diminishes the impact of tenure composition on the quality of financial oversight.

5. Conclusions

In the corporate governance structure, the audit committee performs the supervisory role of the board of commissioners to enhance financial reporting, mitigate financial statement fraud (FSF), and reduce information asymmetry. The board is viewed as a corporate asset that can enhance competitive advantage in the resource-based theory approach. Thus, their backgrounds influence the board's effectiveness in fulfilling its duties. We examine four attributes of audit committee members (gender, education level, tenure, and age) to assess their impact on FSF. Our findings indicate that gender and educational diversity among audit committee members enhance their ability to oversee management, leading to a reduction in FSF. Conversely, age diversity positively correlates with FSF, as older members may demonstrate less diligence, diminishing oversight quality. Additionally, varied ages can create communication challenges, decreasing member coordination effectiveness. We also report that tenure diversity does not significantly affect FSF.

This study provides valuable insights for bank owners when selecting audit committee members. It emphasizes the importance of considering gender, education level, and age backgrounds, as these factors significantly impact the effectiveness of audit committee members in fulfilling their responsibilities. Additionally, the findings benefit bank regulators in enhancing corporate governance, highlighting the need to regulate the gender, age, and education backgrounds of audit committee members to reduce instances of financial statement fraud (FSF).

This study focuses solely on the diversity of audit committee members based on gender, education level, age, and tenure to explain financial statement fraud (FSF). However, future researchers can explore additional attributes. Subsequent studies should consider other diversity factors, such as nationality, religion, educational background, and ethnicity, as a basis for evaluating the quality of audit committee members in performing their roles.

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