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The Effect of Board Diversity on Financial Statement Fraud

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Abstract. *Financial statements have an important role in facilitating all forms of economic activity in the private, public, and non-profit sectors. However, in reality, many companies commit financial statement fraud, causing losses to users. With the increasing attention to financial statement fraud, board diversity has become an important aspect in improving corporate financial reporting monitoring and reducing the possibility of fraud. However, previous studies on the effect of this factor on financial statement fraud still show mixed findings, particularly in the food and beverage manufacturing sub-sector in Indonesia. This study aims to analyze the effect of board diversity on financial statement fraud in food and beverage companies listed on the Indonesia Stock Exchange for the period 2021–2023. This study uses a quantitative approach with secondary data obtained from companies' annual reports and financial statements. Board diversity in this study includes board gender diversity, board age diversity, and board education diversity, all of which are measured using dummy variables. Financial statement fraud is measured using the Beneish m-score. Data analysis is performed using multiple linear regression with the Ordinary Least Squares approach. The results show that board age diversity has a significant negative effect on financial statement fraud. These findings indicate that board diversity is one of the factors that can reduce the likelihood of financial statement fraud.*

Keywords: *Board Age Diversity; Board Diversity; Financial Statement Fraud; Manufacture; Stock Exchange.*

1. INTRODUCTION

Financial statements have an important role in facilitating all forms of economic activity in the private, public, and nonprofit sectors. Stakeholders and managers use financial statement information to measure the performance of their businesses. The reporting of financial information should meet the fundamental qualitative characteristics and the enhancing qualitative characteristics based on the Conceptual Framework for Financial Reporting (IAI, 2019). If financial statements fail to meet qualitative characteristics and do not present a true and fair view, responsibility rests with management, particularly the board of directors. In accordance with Law No. 40 of 2007 concerning Limited Liability Companies, Article 1, the board of directors is the company organ vested with full authority and responsibility for managing the company in the interests of the company, in line with its aims and objectives, as well as for representing the company both inside and outside the court, in accordance with the provisions of the articles of association (Putri & Fadilah, 2021).

In practice, many companies present financial statements that do not accurately reflect their actual financial condition, thereby causing losses to users of financial information. Such practices are referred to as financial statement fraud, which involves the deliberate and intentional manipulation or misrepresentation of financial information with the purpose of misleading users of financial statements, typically driven by opportunistic motives to obtain personal benefits or to advantage certain parties (Merawati & Mahaputra, 2017). One

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prominent example of financial statement fraud in Indonesia is the 2018 case involving PT Garuda Indonesia. The company was found to have engaged in earnings management by improperly recognizing revenue in a single accounting period rather than allocating it over the duration of the underlying agreement. This practice resulted in a material misstatement of the company’s financial performance and involved senior executives, including the former president director, Emirsyah Satar (Binekasri, 2022).

A similar case occurred at PT Tiga Pilar Sejahtera, which was found to have manipulated its 2017 financial statements. Based on the audit report, the company overstated accounts receivable, inventory, and fixed assets by approximately Rp 4 trillion, sales by Rp 662 billion, and profit before tax by Rp 329 billion (Ashrifa et al., 2025). The case involved members of the board of directors, namely Joko Mogoginta and Budhi Istanto. These cases of financial statement fraud demonstrate that such practices are not confined to a specific industry, such as aviation or food and beverage, but may occur across various sectors. Furthermore, both cases share a common characteristic in that they directly involved the board of directors or senior executives, highlighting the critical role of top management in the occurrence of financial statement fraud.

According to the Association of Certified Fraud Examiners (ACFE), fraud perpetrators holding positions as owners or board members cause the highest average losses, amounting to approximately USD 337,000, despite accounting for only 23% of total fraud cases. In Indonesia, board members represent the second-largest group of fraud perpetrators after employees, comprising 29.4% of cases and resulting in losses exceeding IDR 500,000,000 (ACFE Indonesia Chapter, 2019). These findings indicate that although fraud committed by board members occurs less frequently than that by lower-level employees, it tends to generate significantly greater financial losses. High-level perpetrators possess the ability to circumvent or override internal control systems designed to detect and prevent fraud. Moreover, executive positions at the top of the organizational hierarchy provide extensive authority and access in decision-making processes and the preparation of corporate financial reports. This condition creates opportunities for the board of directors to influence the quality and reliability of financial reporting (ACFE, 2022).

Therefore, the composition and structure of the board of directors are critical factors in maintaining effective corporate governance. According to Probohudono et al. (2022) board diversity enhances the board’s oversight function by bringing together individuals with diverse backgrounds, perspectives, and expertise. In the context of corporate governance, board diversity refers to variations in individual characteristics among board members, which collectively contribute to improved monitoring quality and overall board effectiveness. According to Hassan & Marimuthu (2016) board of directors is considered balanced when its members possess diverse backgrounds, as such diversity can enhance performance efficiency. Prior research by Wang et al. (2022) indicates the existence of gender differences in ethical orientation and risk avoidance, suggesting that female board members tend to exhibit higher ethical sensitivity, a lower propensity to engage in fraudulent behavior, and greater caution in financial reporting decisions. Based on the phenomena described above, this study aims to examine the effect of board diversity, specifically board gender diversity, board age diversity, and board education diversity, on financial statement fraud.

2. THEORETICAL STUDY

Agency Theory

Agency theory describes a contractual relationship in which one or more parties (principals) delegate authority to another party (agents) to manage and perform tasks on their behalf. This theory explains the delegation of decision-making authority from principals to agents within the organizational structure of a firm. Agency theory is grounded in several fundamental assumptions, including self-interest, goal conflict, bounded rationality, information asymmetry, efficiency advantages, risk aversion, and information as an outcome (Jensen & Meckling, 1976).

The purpose of agency theory is to explain agency conflicts arising from divergent interests between principals and agents, which lead to information asymmetry between the two parties. Within this framework, investors act as principals, while management functions as agents responsible for operating the company. Agents are entrusted with decision-making authority, the execution of business operations, and the management of risks associated with managerial decisions. Principals, as owners or investors, provide capital and incentives and bear the risks related to their investment (Jensen & Meckling, 1976).

Upper Echelons Theory

The upper echelons theory introduced by Hambrick & Mason (1984) is a theory that states that the results of an organization are influenced by the characteristics of its top executives. The actions of top executives reflect their own personalities in evaluating situations and making decisions. According to this theory, the skills, background, demographic composition, and personality characteristics of top executives play an important role in strategic decision-making and organizational performance. This shows that organizations cannot be separated from their top executives as leaders and decision-makers. This theory also underpins the understanding of how the structure and composition of top executives contribute to differences in strategy, policy, and performance between companies. Hambrick & Mason (1984) merupakan teori yang menyatakan bahwa hasil dari suatu organisasi dipengaruhi oleh karakteristik para eksekutif puncaknya.

Financial Statement Fraud (FSF)

Fraud is an act committed to fulfill the interests of certain parties that disadvantages others and is carried out intentionally in violation of applicable regulations (ACFE, 2016). According to the American Institute of Certified Public Accountants (AICPA), financial statement fraud is defined as intentional acts and actions, misrepresentation or omission of material facts, or misleading accounting data that results in changes in the decisions of financial statement users. Fraud in financial statements involves intentional actions or material negligence in financial reporting that result in financial statements not being prepared in accordance with applicable accounting standards. Such intentional or negligent misstatements are material in nature and have the potential to influence the decisions of users of financial information (Sari & Nugroho, 2020).

Board Diversity

Board diversity can be defined as the diversity of behavior among board members in relation to differences of opinion that can influence decision-making (Putri & Fadilah, 2021) Board diversity provides benefits to companies such as providing a better understanding of business and market opportunities, increasing innovation, producing better problem solving with opinions from various perspectives, increasing company effectiveness, and increasing awareness and responsibility for social issues (Carter et al, 2003). In addition, board diversity can reduce the dominance of a single point of view, thereby broadening perspectives and improving the quality of decision-making. Diversity in the composition of the board of directors can also strengthen the supervisory function, which can reduce opportunistic behavior and the risk of fraud.

3. RESEARCH METHOD

Sample Selection and Data

The population of this study consists of all food and beverage manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the period 2021-2023. The sample was selected using purposive sampling based on the following criteria: (1) food and beverage companies listed on the IDX during 2021-2023; (2) companies that published complete annual reports and financial statements, including information on the profiles of the board of directors,

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for the period 2021-2023; and (3) companies that prepared their financial statements using the Indonesian rupiah (IDR) as the reporting currency.

Dependent Variables: Board Gender Diversity, Board Age Diversity, Board Education Diversity

The dependent variable in this study is measured using a dummy variable, with the following explanation:

a. Board gender diversity refers to board diversity assessed based on the presence or absence of female directors within a company's board of directors. This variable is measured using a dummy variable, where a value of 1 is assigned if the board includes at least one female director and 0 if there are no female directors. A value of 1 indicates female representation in the board structure.
b. Board age diversity refers to board diversity assessed based on the age composition of directors. Directors' ages are classified into two categories: junior directors aged ≤ 50 years and senior directors aged ≥ 51 years. This variable is measured using a dummy variable, where a value of 1 is assigned if the board includes senior directors and 0 if no senior directors are present. A value of 1 indicates the representation of directors aged 51 years or older on the board of directors.
c. Board education diversity refers to board diversity assessed based on the educational background of directors. Directors' educational backgrounds are classified into two categories: accounting/finance and non-accounting/finance. This variable is measured using a dummy variable, where a value of 1 is assigned if the board includes directors with an accounting or finance educational background and 0 otherwise. A value of 1 indicates the representation of directors with an accounting or finance background on the board of directors.

Independent Variable: Financial Statement Fraud

The dependent variable in this study is measured using the Beneish M-Score, a financial ratio model designed to detect financial statement fraud. Beneish et al. (2012) developed the M-Score based on a combination of eight financial ratios that capture unusual changes in accruals, leverage, asset quality, and sales growth, which collectively indicate the likelihood of earnings manipulation.

$$\textit{M-Score} = -4{,}84 + (0{,}920 \text{ x DSRI}) + (0{,}528 \text{ x GMI}) + (0{,}404 \text{ x AQI}) + (0{,}892 \text{ x SGI}) + (0{,}115 \text{ x DEPI}) - (0{,}172 \text{ x SGAI}) - (0{,}327 \text{ x LVGI}) + (4{,}697 \text{ x TATA})$$

The M-Score model consists of a constant value of −4.84 and eight financial ratios, each multiplied by its respective coefficient. A company is classified as engaging in financial statement fraud if the M-Score is greater than −2.22, whereas an M-Score below −2.22 indicates that the company is not suspected of committing financial statement fraud.

4. RESULTS AND DISCUSSION

Descriptive Statistics

Table 1. Descriptive Statistics Results.

Descriptive Statistics					
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
BOGEND	192	0.00	1.00	0.359	0.481
BAGE	192	0.00	1.00	0.542	0.499
BEDU	192	0.00	1.00	0.479	0.501
FSF	192	-3.49	2.29	2.064	1.303
Valid N (listwise)	192				

Board gender diversity has a minimum value of 0 and a maximum value of 1.00. The mean value of 0.359 indicates that only a relatively small proportion of food and beverage companies have female representation on their boards of directors. The standard deviation of 0.481, which is greater than the mean value.

Board age diversity has a minimum value of 0 and a maximum value of 1.00. The mean value of 0.542 indicates that the majority of food and beverage companies have age diversity within their boards of directors. The standard deviation of 0.499, which is less than the mean value.

Board education diversity has a minimum value of 0 and a maximum value of 1.00. The mean value of 0.479 indicates that fewer than half of the sampled companies exhibit diversity in the educational backgrounds of their board members. The standard deviation of 0.501, which is greater than the mean value.

Financial statement fraud, as measured by the Beneish M-Score, has a minimum value of -3.49 and a maximum value of 2.29. The mean value of -2.064 suggests that, on average, food and beverage companies are indicated to be at risk of financial statement fraud, as the mean exceeds the cut-off value of -2.22. The standard deviation of 1.303, which is greater than the mean value..

Normality Test

Table 2. Normality Test Results.

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		192
Normal Parameters[a,b]	Mean	0.000
	Std. Deviation	1.275
Most Extreme Differences	Absolute	0.194
	Positive	0.194
	Negative	-0.093
Test Statistic		0.194
Asymp. Sig. (2-tailed)		0.000[c]

Table 2 presents the results of the normality test using the One-Sample Kolmogorov–Smirnov method, indicating that the Asymp. Sig. (2-tailed) value is 0.000, which is below the significance level of 0.05. This result suggests that the residuals are not normally distributed. However, according to the Central Limit Theorem, a sample size greater than 30 can be assumed to follow a normal distribution (Gujarati, 2003). This study employs a total of 64 companies observed over a three-year period, resulting in a sufficiently large sample size. Therefore, the normality assumption is considered to be satisfied based on the Central Limit Theorem.

Coefficient of Determination (R^2) Test

Table 3. R^2 Test Results.

Model Summary[b]				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.206[a]	0.43	0.027	1.285
a. Predictors: (Constant), BEDU, BAGE, BOGEND				
b. Dependent Variable: FSF				

An adjusted R-square value of 0.027 indicates that 2.7% of the financial statement fraud variable (Y) can be explained by the board gender diversity (X1), board age diversity (X2), and board education diversity (X3) variables. Meanwhile, the remaining 97.3% is explained by other factors outside the scope of this study.

F Test

Table 4. F Test Results.

Model		Squares	df	Mean Square	F	Sig.
1	Regression	13.794	3	4.598	2.782	0.042[b]
	Residual	310.705	188	1.653		
	Total	324.449	191			

a. Dependent Variable: FSF
b. Predictors: (Constant), BEDU, BAGE, BOGEND

Based on Table 4, which presents the results of the F-test, the calculated F-value is 2.782, exceeding the critical F-value of 2.65. In addition, the significance value of 0.042 is lower than the 0.05 significance level. Therefore, it can be concluded that the independent variables; board gender diversity, board age diversity, and board education diversity jointly and simultaneously have a significant effect on financial statement fraud as the dependent variable.

T Test

Table 5. T Test Results.

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	T	Sig.
1	(Constant)	-1.679	0.177		-9.510	0.000
	BOGEND	-0.312	0.202	-0.115	-1.545	0.124
	BAGE	-0.496	0.189	-0.190	-2.625	0.009
	BEDU	-0.009	0.191	-0.003	-0.045	0.964

a. Dependent Variable: FSF

Based on Table 6, the linear regression equation in this study can be expressed as follows:

$$Y = -1,679 + (-0,312X_1) + (-0,496X_2) + (-0,009X_3)$$

Board gender diversity (X_1) variable shows a negative coefficient of 0.312. Thus, it can be interpreted that if variable X_1 increases by 1, it will have an effect on increasing the value of Y by -0.312. Variable X_1 has an absolute t-value of 1.545. This value is smaller than 1.545 < 1.653 t-table with a significance value of 0.124 > 0.05. This indicates that board gender diversity has no effect on financial statement fraud (Y).

Board age diversity (X_2) variable shows a negative coefficient of 0.496. Therefore, it can be interpreted that if variable X_2 increases by 1, it will have an effect on increasing the value of Y by -0.496. Variable X_2 has an absolute t-count value of 2.625. This value is greater than 2.625 > 1.653 t-table with a significance value of 0.009 < 0.05. This indicates that board age diversity has a negative and significant effect on financial statement fraud (Y).

Board education diversity (X_3) variable shows a negative coefficient of 0.009. Therefore, it can be interpreted that if variable X_3 increases by 1, it will have an effect on increasing the value of Y by -0.009. Variable X_3 has an absolute t-count value of 0.045. This value is smaller than 0.045 < 1.653 t-table with a significance value of 0.964 > 0.05. This indicates that board education diversity has no effect on financial statement fraud (Y).

The Effect of Board Gender Diversity on Financial Statement Fraud

Based on the research findings, board gender diversity does not have a significant effect on financial statement fraud. This result is consistent with prior studies by Purba et al. (2022) and Pradani and Diyanty (2023), which also find no significant relationship between board gender diversity and financial statement fraud. The mean value of is 0.359 indicates limited female representation on the boards of directors of food and beverage companies. This suggests that most firms remain dominated by male directors, resulting in a relatively homogeneous gender composition that may be insufficient to enhance the effectiveness of financial reporting oversight.

From the perspective of agency theory, gender diversity on the board of directors, which serves as a monitoring mechanism, is expected to help reduce conflicts of interest between management as agents and shareholders as principals. However, the low level of female representation implies that the board's monitoring role may not be strong enough to generate a meaningful impact. Furthermore, according to upper echelons theory, the demographic characteristics of top executives influence organizational outcomes; however, such influence is likely to emerge only when there is adequate diversity among top executives to shape decision-making processes.

The empirical results demonstrate that board gender diversity does not exert a statistically significant influence on financial statement fraud, indicating that the mere presence of female directors has not yet translated into effective constraints on fraudulent financial reporting practices. This finding aligns with prior empirical evidence documenting insignificant associations between gender-diverse boards and fraud-related outcomes in Indonesian listed companies, particularly within manufacturing contexts (Purba et al., 2022; Pradani & Diyanty, 2023). The descriptive statistics reveal a mean value of 0.359 for board gender diversity, reflecting limited female participation on boards of directors in food and beverage manufacturing firms. Such numerical representation suggests that gender inclusion remains largely symbolic rather than substantive, limiting its capacity to alter dominant governance dynamics.

The dominance of male directors across most sampled firms implies a homogeneous decision-making environment that restricts the infusion of alternative ethical perspectives into financial oversight processes. Prior governance literature emphasizes that diversity yields governance benefits only when it reaches a critical mass capable of influencing board deliberations and strategic judgments (Carter et al., 2003; Hassan & Marimuthu, 2016). In environments where female directors constitute a marginal minority, their influence on financial reporting decisions may be constrained by entrenched organizational hierarchies and informal power structures. Consequently, gender diversity under such conditions may fail to produce observable effects on fraud deterrence mechanisms embedded within board governance.

From the standpoint of agency theory, the board of directors functions as a key monitoring mechanism designed to mitigate information asymmetry and opportunistic behavior by management acting as agents on behalf of shareholders as principals (Jensen & Meckling, 1976). Gender-diverse boards are theoretically expected to strengthen this monitoring role through heightened ethical sensitivity and risk aversion associated with female leadership traits (Merawati & Mahaputra, 2017; Wang et al., 2022). However, the empirical insignificance observed in this study indicates that the low proportion of female directors weakens the board's capacity to exercise effective oversight over financial reporting practices. As a result, agency conflicts related to financial misrepresentation may persist despite nominal gender diversity.

The persistence of financial statement fraud cases involving top executives in Indonesia further illustrates the limited effectiveness of symbolic board diversity in restraining opportunistic behavior. High-profile fraud incidents, such as those involving PT Garuda Indonesia and PT Tiga Pilar Sejahtera Food Tbk, underscore the central role of senior management and boards in enabling or failing to prevent financial manipulation (Binekasri, 2022; Ashrifa et al., 2025). Reports by professional bodies consistently indicate that fraud perpetrated by board members and executives results in disproportionately high financial losses due to their authority and access to internal reporting systems (Association of Certified Fraud Examiners, 2016; ACFE Indonesia Chapter, 2019; Association of Certified Fraud Examiners, 2022). These patterns suggest that governance effectiveness depends more on substantive control mechanisms than on formal demographic attributes alone.

Upper echelons theory provides additional explanatory insight by emphasizing that organizational outcomes reflect the collective characteristics, values, and cognitive frames of top executives (Hambrick & Mason, 1984). Demographic attributes such as gender influence strategic behavior only when they meaningfully shape decision-making processes at the highest organizational levels. In boards where female representation is minimal, gender-related perspectives may be marginalized and fail to influence financial reporting judgments. This theoretical lens reinforces the argument that diversity effects are contingent upon both representation and influence within the executive hierarchy.

The measurement approach employed in this study further contextualizes the insignificant findings related to gender diversity. Board gender diversity was operationalized using a dummy variable capturing the presence or absence of female directors, rather than the proportion or tenure of women on the board. Such a binary measurement may insufficiently capture the depth of gender inclusion and its potential impact on governance quality, as highlighted in critiques of formalistic board monitoring structures (Boivie et al., 2015). Consequently, the absence of a significant relationship may reflect measurement limitations rather than the irrelevance of gender diversity in principle.

The findings also align with broader fraud detection literature employing quantitative models such as the Beneish M-Score, which emphasizes financial indicators and accrual-based manipulation rather than governance attributes alone (Beneish et al., 2012; Sari & Nugroho, 2020). Financial statement fraud emerges from complex interactions between incentives, opportunities, and rationalizations, suggesting that board composition variables operate alongside financial pressures and control weaknesses. Studies applying econometric techniques to fraud analysis similarly report low explanatory power for single governance variables when isolated from broader institutional and financial contexts (Gujarati, 2003; Probohudono et al., 2022). This reinforces the notion that gender diversity should be examined as part of an integrated governance framework rather than as a standalone determinant.

The Effect of Board Age Diversity on Financial Statement Fraud

Based on the research findings, board age diversity has a significant negative effect on financial statement fraud, indicating that greater age diversity on the board is associated with a lower likelihood of fraudulent financial reporting. This result is consistent with prior studies by Probohudono et al. (2022), who find that board age diversity significantly reduces financial statement fraud, and Xu et al. (2018), which also find a significant relationship between board age diversity and corporate financial fraud.

From the perspective of agency theory, age diversity among board members enhances the board’s monitoring function by incorporating varied levels of experience, risk perception, and judgment, thereby strengthening oversight over management as agents and reducing conflicts of interest between agents and principals. Moreover, upper echelons theory suggests that demographic characteristics of top executives, including age, shape their cognitive frames and strategic decision-making processes. A more age-diverse board reflects a broader range of personal and professional experiences, which can improve the quality of deliberation and decision-making. Consequently, board age diversity plays a crucial role in mitigating the likelihood of financial statement fraud.

The empirical results demonstrate that board age diversity exerts a statistically significant negative influence on financial statement fraud, indicating that firms with a more age-diverse board of directors tend to exhibit a lower propensity for fraudulent financial reporting. This finding aligns with evidence reported by Probohudono et al. (2022) and Xu et al. (2018), who document that heterogeneity in directors' ages strengthens governance quality and constrains opportunistic financial behavior. In the context of Indonesian listed companies, where high-profile fraud cases such as Garuda Indonesia and PT Tiga Pilar Sejahtera have underscored the central role of top management in financial misreporting, the relevance of board composition becomes increasingly salient (Binekasri, 2022; Ashrifa et al., 2025). The broader literature on occupational fraud consistently shows that individuals occupying senior governance positions are capable of generating substantial financial losses due to their authority and access, reinforcing the importance of effective board oversight mechanisms (Association of Certified Fraud Examiners, 2016; ACFE Indonesia Chapter, 2019; Association of Certified Fraud Examiners, 2022).

From the perspective of agency theory, age diversity among board members enhances the monitoring function by integrating different levels of professional experience, ethical sensitivity, and risk assessment, which collectively reduce information asymmetry and agency conflicts between principals and agents (Jensen & Meckling, 1976). Directors with longer tenure and greater life experience often display heightened prudence and skepticism toward aggressive accounting practices, while relatively younger directors may contribute analytical agility and familiarity with contemporary business dynamics, creating a more balanced supervisory environment (Carter et al., 2003; Hassan & Marimuthu, 2016). Prior governance studies suggest that effective monitoring cannot rely solely on formal structures but requires boards capable of processing complex information and exercising sound judgment, conditions that are more likely to emerge in demographically diverse boards (Boivie et al., 2015; Putri & Fadilah, 2021). In financial reporting contexts governed by accounting standards and qualitative characteristics established by professional bodies, such as those articulated by the Ikatan Akuntansi Indonesia, this diversity strengthens the board's capacity to challenge managerial discretion and questionable reporting choices (Ikatan Akuntansi Indonesia, 2019; Gujarati, 2003).

Upper echelons theory further explains the observed relationship by emphasizing that executives' demographic attributes, including age, shape cognitive frames, values, and strategic preferences that ultimately influence organizational outcomes (Hambrick & Mason, 1984). A board composed of members from varied age cohorts embodies a wider spectrum of personal histories and decision-making logics, which enriches deliberation processes and reduces the likelihood that a single dominant mindset will prevail in sensitive areas such as financial reporting (Xu et al., 2018). In contrast to other dimensions of board diversity, such as gender or educational background, which have produced mixed empirical results in fraud-related studies, age diversity appears to exert a more direct influence on prudence and ethical restraint in reporting behavior (Halim et al., 2021; Purba et al., 2022; Pradani & Diyanty, 2023; Wang et al., 2022; Merawati & Mahaputra, 2017; Sari & Nugroho, 2020; Beneish et al., 2012). Taken together, these findings position board age diversity as a substantive governance attribute that contributes meaningfully to mitigating financial statement fraud within corporate settings characterized by complex agency relationships and elevated fraud risks.

The Effect of Board Education Diversity on Financial Statement Fraud

Based on the research findings, board education diversity does not have a significant effect on financial statement fraud. These findings are supported by research conducted by Probohudono et al. (2022), which states that board education diversity has no effect on financial statement fraud, and Halim et al. (2021), which states that board education diversity has no effect on corporate fraud. The mean value of BEDU is 0.479 indicates that fewer than half of food and beverage companies exhibit diversity in the educational backgrounds of their board members, suggesting that such diversity is not yet sufficiently prevalent to exert a meaningful influence on the effectiveness of financial reporting practices.

From the perspective of agency theory, diversity in educational backgrounds on the board of directors, which functions as a monitoring mechanism, is expected to help reduce conflicts of interest between management as agents and shareholders as principals. However, consistent with the findings of Boivie et al. (2015), enhanced oversight based solely on formal competence or structural characteristics may be insufficient, as the effectiveness of board monitoring depends on the board's collective ability to acquire, process, and utilize information. Furthermore, according to upper echelons theory, although educational background represents an important demographic characteristic influencing organizational outcomes, its impact may not be apparent when educational diversity is limited or when other factors dominate the decision-making process.

The empirical results demonstrate that board education diversity does not exert a statistically significant influence on financial statement fraud, indicating that variation in directors' educational backgrounds alone is insufficient to constrain opportunistic financial reporting behavior. This finding is aligned with prior governance and fraud studies documenting the absence of a direct association between educational diversity at the board level and fraudulent outcomes, particularly in emerging market settings where governance mechanisms remain heterogeneous (Probohudono et al., 2022; Halim et al., 2021; Putri & Fadilah, 2021). Descriptive evidence further shows that the mean value of board education diversity is 0.479, suggesting that fewer than half of food and beverage manufacturing firms exhibit boards with heterogeneous educational backgrounds, a condition that limits the depth of cognitive variation available for effective oversight. In such circumstances, the monitoring role of the board may remain largely formalistic, echoing broader observations that structural compliance with governance attributes does not automatically translate into substantive control over financial reporting practices (ACFE Indonesia Chapter, 2019; Association of Certified Fraud Examiners, 2016; Association of Certified Fraud Examiners, 2022).

From the standpoint of agency theory, educational diversity among board members is conceptually expected to strengthen monitoring by enriching analytical capacity and reducing information asymmetry between principals and agents, particularly in the preparation and presentation of financial statements (Jensen & Meckling, 1976; Ikatan Akuntansi Indonesia, 2019). Nevertheless, empirical evidence indicates that enhanced oversight cannot be attributed solely to formal educational credentials, as effective monitoring depends on the board's collective ability to interpret complex information, challenge managerial discretion, and translate expertise into coordinated action (Boivie et al., 2015; Carter et al., 2003). In practice, boards operating in environments with concentrated ownership structures and dominant executives may experience limitations in leveraging educational heterogeneity to counterbalance managerial power, even when accounting or finance expertise is present (Merawati & Mahaputra, 2017; Gujarati, 2003). This condition resonates with documented fraud cases in Indonesia, where manipulation of financial statements occurred despite the existence of ostensibly qualified directors, illustrating the gap between formal competence and effective governance outcomes (Binekasri, 2022; Ashrifa et al., 2025; Beneish et al., 2012).

Upper echelons theory further provides an interpretive lens by emphasizing that observable characteristics such as educational background influence organizational outcomes only when they meaningfully shape executives' cognitive frames and strategic preferences within decision-making processes (Hambrick & Mason, 1984). When educational diversity is limited in scope or symbolic in nature, its capacity to alter boardroom dynamics and restrain aggressive reporting choices becomes marginal, particularly relative to other dominant attributes such as age, tenure, or power concentration (Hassan & Marimuthu, 2016; Xu et al., 2018). Prior studies also suggest that the effectiveness of demographic diversity is contingent upon its interaction with complementary governance mechanisms, including board independence and audit committee strength, rather than operating as an isolated determinant of fraud risk (Pradani & Diyanty, 2023; Purba et al., 2022). Accordingly, the insignificant relationship observed in this study reinforces the view that board education diversity, while normatively desirable, does not independently constitute a decisive factor in mitigating financial statement fraud within Indonesian food and beverage manufacturing firms (Sari & Nugroho, 2020; Wang et al., 2022).

5. CONCLUSION AND SUGGESTION

Board gender diversity variable has no significant effect on financial statement fraud. From the perspective of agency theory, the presence of female directors is expected to enhance the board's monitoring function; however, low female representation limits the effectiveness of such oversight. Furthermore, according to upper echelons theory, gender-related characteristics influence strategic decision-making only when there is sufficient diversity among top executives, which may explain the insignificant effect observed in this study.

Board age diversity variable has a significant negative effect on financial statement fraud. In relation to agency theory, age diversity strengthens the board's supervisory role by incorporating varied experiences, risk perceptions, and prudence, thereby constraining opportunistic behavior by management as agents. Consistent with upper echelons theory, age-related characteristics shape executives' perspectives and strategic decisions, and greater age diversity is associated with increased caution toward the risks of financial statement fraud.

Board education diversity variable has no effect on financial statement fraud. In relation to agency theory, the educational background of the board of directors is associated with improved oversight quality, but according to Boivie et al. (2015), this is not always realistic because the effectiveness of oversight is also influenced by the ability to collectively obtain, process, and use information. Furthermore, according to upper echelons theory, the influence of educational background on organizational outcomes depends on the substantive role of individuals in decision-making, so that board education diversity is not yet a major factor in reducing the likelihood of financial statement fraud.

The limitations of this study is limited to food and beverage companies listed on the Indonesia Stock Exchange during the 2021–2023 period. Consequently, the findings cannot be generalized to other industrial sectors that may have different operational characteristics, governance structures, and managerial dynamics. This study suggests using research samples from companies in other sectors, such as mining. In addition, future researchers are also advised to use other board diversity indicators, such as board independence or board nationality diversity.

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