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The Role of Fraud Pentagon Elements in Financial Statement Fraud: Evidence from Islamic Commercial Banks in Indonesia

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Abstract

Islamic banks in Indonesia have experienced rapid growth relative to their conventional counterparts. However, this expansion is accompanied by challenges, notably the prevalence of fraudulent practices. This study aims to analyze the influence of the fraud pentagon on Financial Statement Fraud (FFR) in Islamic Commercial Banks in Indonesia from 2018 to 2023, both collectively and individually. The study population comprises all Islamic Commercial Banks in Indonesia registered with the Financial Services Authority (OJK) as of December 2023. Using a purposive sampling method, ten Islamic commercial banks were selected for analysis. The research employs a Multiple Linear Regression Analysis model, executed in EViews 13. The findings reveal that, collectively, the elements of Pressure (ROA), Opportunity (BDOUT), Rationalization (TACC), Capability (DCHANGE), and Arrogance (CEO PICTURE) significantly impact FFR. Individually, Pressure (ROA), Opportunity (BDOUT), and Rationalization (TACC) have a positive and significant effect on FFR, while Capability (DCHANGE) and Arrogance (CEO PICTURE) exhibit a positive but non-significant effect.

Keywords: Fraud Pentagon; Financial Statement Fraud (FFR); Islamic Commercial Banks; Multiple Linear Regression Analysis; Indonesia

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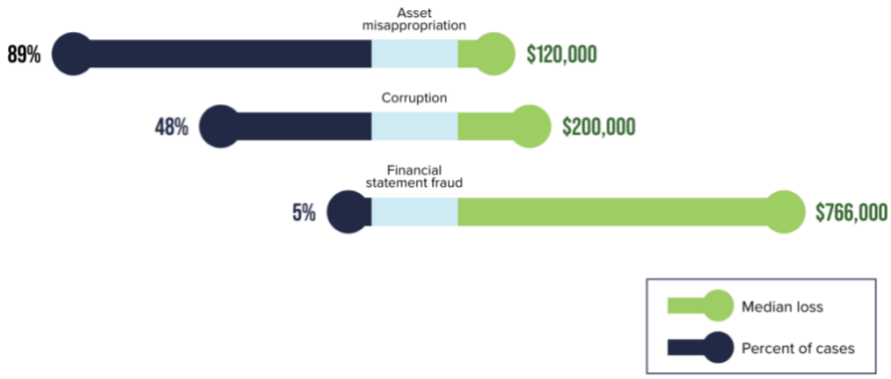
Introduction

Islamic banks in Indonesia have been growing rapidly compared to their conventional counterparts. However, this growth is not without challenges, particularly regarding fraudulent activities within Islamic banks (Muchtar, 2022). Financial statement fraud, a type of fraud arising from discrepancies between financial statements and actual financial conditions, results in misleading reports (Turvey, 2013). Fraudulent financial reports contribute to inaccurate financial disclosures, impacting stakeholders and regulatory compliance. The 2024 report by the Association of Certified Fraud Examiners (ACFE) identifies various types of fraud (Figure 1).

Figure 1. Percentage of Fraud in 2024



Source: ACFE Report to the Nations (2024)

According to ACFE, asset misappropriation represents the highest proportion of fraud cases, accounting for 89% with an average loss of $120,000. Corruption constitutes 48% of cases, with an average loss of $200,000. Although financial statement fraud comprises only 5% of total cases, it has the largest median financial impact, with losses reaching up to $766,000. Thus, despite its lower occurrence, financial statement fraud results in the most substantial financial damage. Industry classifications further indicate that the banking and financial sectors hold the highest fraud percentage (ACFE, 2024).

Table 1. Fraud Data by Industry

No.	Industry	Case	Percentage of Cases
1	Banking and financial services	305	22 %
2	Manufacturing	175	13 %
3	Governance and public administration	170	12 %
4	Health care	117	9 %
5	Energy	78	6 %
6	Retail	78	6 %
7	Construction	73	5 %
8	Education	70	5 %
9	Insurance	69	5 %
10	Technology	65	5 %
11	Transportation and warehousing	60	4 %
12	Religious, charitable, or social services	58	4 %
13	Information	52	4 %
Total		**1.370**	**100 %**

Source: Report to the Nations, ACFE (2024)

In total, the banking and financial sector accounts for 305 cases or 22% of reported fraud incidents, the highest among all sectors. Notably, Islamic banks in Indonesia have experienced significant fraud cases, including a fictitious financing scheme at Bank Panin Dubai Syariah, with losses reaching approximately 14 trillion IDR. Additionally, a similar scheme in 2023 at Bank BSI led to losses of around 60 billion IDR.

This study employs the fraud pentagon theory, developed by Crowe Horwath in 2011, as an extension of the traditional fraud triangle (Horwath, 2011b). The purpose of this research is to examine the impact of the fraud pentagon elements on Financial Statement Fraud (FFR) in Islamic Commercial Banks in Indonesia from 2018 to 2023, considering both simultaneous and individual effects. The fraud pentagon framework comprises five elements: pressure, opportunity, rationalization, competence, and arrogance.

The first element, pressure, refers to factors that can compel individuals to commit fraud, including financial needs, lifestyle demands, or external pressures

(Rahmatika Noviany, 2020). The Return on Assets (ROA) metric assesses asset efficiency, evaluates managerial performance, and influences decisions related to bonuses and salary increments (Skousen et al., 2009). A higher ROA target set by the company increases the likelihood of management engaging in financial statement fraud. Studies by Nikmah and Arjoen (2023), Solikhin and Prasetya (2023), and Farida et al. (2023) have found a positive and significant effect of pressure (as proxied by ROA) on Financial Statement Fraud (FFR). Conversely, Roza (2024) and Prakoso & Setiyorini (2021) argue that pressure (ROA) has a negative and significant impact on FFR. Further, research by Puryati et al. (2023), Fadhilah and Widyananto (2022) and Fadhilah et al. (2024) suggests that pressure (ROA) has no significant effect on FFR.

The second element, opportunity, arises when an individual perceives an opening to commit fraud without detection (Arifin, 2020: 6). According to SAS No. 99, one factor that enables fraud is a weak internal control system, often exacerbated by the absence of a supervisory unit effectively monitoring company performance. Establishing an independent board of commissioners can strengthen oversight and minimize fraud risk (Skousen et al., 2009), as separate boards ideally help build a robust internal control system (Saeroji et al., 2021).

Studies by Alvionika & Meiranto (2021) and Wahyutomo & Marsono (2024) indicate that Opportunity (BDOUT) has a negative and significant effect on FFR. In contrast, research conducted by Azizah et al. (2024), Fadhilah et al. (N. H. K. Fadhilah et al., 2024) Almujaddedi & Hayati (2022), Fadhilah & Widyananto (F. N. Fadhilah & Widyananto, 2022) and Sembiring & Zulfiati (2020) suggests a positive and significant impact of Opportunity (BDOUT) on FFR. Additionally, findings from Puryati et al. (Puryati et al., 2023), Maulina & Meini (2023), Noviana et al. (2022), Cahyani & Annisa (2021) and Roza (Roza, 2024) report that Opportunity (BDOUT) has no significant effect on FFR.

The third element, rationalization, reflects the mindset of perpetrators who justify fraud by assuming there is a minimal risk of detection and a likelihood of financial gain (Arifin, 2020: 7). In this study, the total accrual ratio, a principle associated with management decision-making, serves as a proxy for rationalization. This ratio can illustrate how management may rationalize the manipulation of financial statements to justify their actions. Research by Puadi et al. (2024), Nadia et al. (2023), Cahyani & Annisa (Cahyani & Annisa, 2021), Sembiring & Zulfiati (Sembiring & Zulfiati, 2020) and Khoirunnisa et al. (2020) demonstrates that Rationalization (TACC) has a positive and significant effect on Financial Statement

Fraud (FFR). Conversely, findings by Haninun & Habibburahman (2022) and Ratnasari & Rofi (2020) indicate that Rationalization (TACC) has no significant effect on FFR.

The fourth element, competence, refers to the skills or authority that enable individuals within an organization to commit fraud. High competence, especially in influential positions, can empower individuals to exploit their roles for fraudulent purposes (Arifin, 2020). In this study, competence is proxied by changes in the board of directors. Frequent director turnover may increase the likelihood of financial statement fraud, as these transitions can disrupt management processes, leading to performance gaps and creating opportunities for fraud.

Research by Nikmah & Arjoen (Nikmah & Arjoen, 2023), Nurhakim & Harto (2023) and Nadia et al. (Nadia et al., 2023) indicates that Competence (DCHANGE) has a positive and significant effect on Financial Statement Fraud (FFR). Conversely, studies by Puadi et al. (Puadi et al., 2024), Puryati et al. (Puryati et al., 2023) and Siddiq et al. (2023) report a significant negative effect of Competence (DCHANGE) on FFR. Additionally, research by Fadhilah et al. (N. H. K. Fadhilah et al., 2024), Prakoso & Setiyorini (Prakoso & Setiyorini, 2021), Sembiring & Zulfiati (Sembiring & Zulfiati, 2020), Fadhilah & Widyananto (F. N. Fadhilah & Widyananto, 2022), Roza (Roza, 2024) and Cahyani & Annisa (Cahyani & Annisa, 2021) suggests that Competence (DCHANGE) has no significant effect on FFR.

The fifth element in the fraud pentagon is arrogance. In this study, CEO PICTURE is used as a proxy for arrogance. The CEO's high position within a company can foster a sense of ego, as described by Crowe Horwath, who suggests that CEOs may exhibit a heightened sense of self-importance. This arrogance can lead CEOs to act in ways they believe are beyond scrutiny. Displaying the CEO's picture in the financial report symbolizes their authority and influence within the company (N. H. K. Fadhilah et al., 2024).

Research conducted by Azizah et al. (Azizah et al., 2024), Maulina & Meini (Maulina & Meini, 2023) and Novarina & Triyanto (2022) indicates that the presence of the CEO's picture has a positive and significant effect on financial statement fraud. However, studies by Roza (Roza, 2024), Fadhilah et al. (N. H. K. Fadhilah et al., 2024), Nurhakim & Harto (Nurhakim & Harto, 2023) and Wahyutomo & Marsono (Wahyutomo & Marsono, 2024) suggest that the CEO's picture has no significant effect on financial statement fraud.

Literature Review

Agency Theory

Agency theory explains the relationship in which agents, or management, are employed by principals to act on their behalf and execute tasks aligned with the principals' interests. This delegation allows agents to make decisions for the company. However, divergent interests between principals and management often create conflicts, as agents' self-interests may not align with those of the principal (Titisari, 2020).

Agency theory centers on understanding individuals' behaviors and interactions within their work environment. It operates on three main assumptions: human nature, organizational structure, and information asymmetry. The assumption about human nature posits that individuals possess limited rationality, act in self-interest, and are risk-averse. Organizationally, the theory assumes conflicts exist among members over productivity, and information asymmetry often exacerbates these conflicts.

Interest misalignments between principals and agents can create opportunities for management to manipulate financial data. Agents who face various pressures may strategize to enhance the company's performance, driven by the hope (rationalization) that improved performance will earn them recognition or rewards from the principal. Those who receive such recognition, especially senior agents or officials, may experience a sense of pride (arrogance), reinforced by their elevated positions and the company's success.

Fraud Pentagon Theory

The Fraud Pentagon theory is an evolution of the Fraud Triangle, later expanded into the Fraud Diamond by Wolf and Hermanson, and finally into the Fraud Pentagon by Crowe Horwath (Ardianingsih, 2018). The Fraud Pentagon modifies one element of the Fraud Diamond by replacing "capability" with "competence," retaining a similar meaning, and introduces an additional element, "arrogance" (Tessa & Harto, 2016).

According to Horwath (2011), arrogance is reflected through five CEO-related indicators: a big ego, where the CEO perceives themselves as more of a celebrity than a business leader; a belief in exemption from internal controls, feeling these controls do not apply to them; bullying behavior, where the CEO exhibits aggressive

tendencies; an authoritarian leadership style; and a fear of losing their position and status.

The Fraud Pentagon Theory was developed in response to the increasing variety of factors influencing individuals to commit fraud. Additionally, modern fraud perpetrators often possess greater access to information and resources, which can facilitate fraudulent activities (Yustiani, 2023).

Social Comparison Theory

Social Comparison Theory, first proposed by Festinger in 1954, suggests that individuals tend to compare themselves with others who are either more successful (upward comparison) or less successful (downward comparison) (SooHoo, 2013).

When individuals compare themselves to those they perceive as less successful, their self-esteem and pride can increase, which may enhance career satisfaction. However, this effect can also foster narcissism and aggression. This theory underpins the measurement of the arrogance element in the Fraud Pentagon, as reflected by the inclusion of the CEO's picture in annual reports. Olsen and Stekelberg pioneered this approach, arguing that photographs can reveal a person's narcissistic tendencies (Binus University, 2021).

Fraud Score Model (F-Score)

The F-Score model, a tool for detecting financial statement fraud, was developed by Dechow (Basmar & Ruslan, 2021). According to research by Jason Hugo (2019), the F-Score model is more effective in identifying false financial reporting than the Beneish M-Score model. The F-Score is based on two main components: financial performance and accrual quality (Wibowo & Putra, 2023). Dechow's research, as cited in Azizah (Azizah et al., 2024), indicates that companies involved in fraud typically have an F-Score above 1, which signals potential fraud. Conversely, an F-Score below 1 or negative suggests no indication of fraud.

Hypothesis

Pressure and Financial Statement Fraud

Pressure refers to the strategies managers may use to engage in fraudulent activities (Ardianingsih, 2018). A common pressure is meeting financial targets, often measured by Return on Assets (ROA). ROA is frequently used to assess

employee performance in areas such as overtime, bonuses, salary increases, and other incentives (Mariyah & Dharma, 2022).

H1: Pressure (ROA) has a positive and significant effect on Financial Statement Fraud.

Opportunity and Financial Statement Fraud

Factors that create opportunities for fraud include ineffective sanctions, weak internal controls, and inadequate performance assessment measures (Ardianingsih, 2018). The presence of independent commissioners can enhance management oversight and help prevent financial fraud (Zahara & Novita, 2019).

H2: Opportunity (BDOUT) has a positive and significant effect on Financial Statement Fraud.

Rationalization and Financial Statement Fraud

According to Ardianingsih (Ardianingsih, 2018), rationalization occurs when perpetrators seek justification for their fraudulent actions. Rationalization, as proxied by total accruals (TACC), reflects attitudes that support financial statement fraud. Managers may justify certain accounting practices that facilitate fraud, often evidenced by accrued items in financial statements. The accrual principle thus plays a significant role in managerial decision-making and the rationalization of fraudulent reporting (Septriani & Handayani, 2018).

H3: Rationalization (TACC) has a positive and significant effect on Financial Statement Fraud.

Competence and Financial Statement Fraud

Competence, as described by Ardianingsih (Ardianingsih, 2018), is an individual's ability to recognize and exploit profitable opportunities, potentially leading to repeated acts of fraud. Changes in working practices, driven by the desire to enhance working conditions, can also influence fraud risk (Nadia et al., 2023). Furthermore, stress from frequent director changes may increase the likelihood of fraudulent activity (Novitasari & Chariri, 2018).

H4: Competence (DCHANGE) has a positive and significant effect on Financial Statement Fraud.

Arrogance and Financial Statement Fraud

Arrogance manifests when an individual believes they are exempt from company policies and procedures, leading them to act above others (Ardianingsih, 2018). CEOs who frequently feature in financial reports may believe they hold disproportionate influence over company policies (Fathmaningrum & Anggarani, 2021). The more prominent the CEO's presence in these reports, the greater the likelihood of an increase in arrogant and narcissistic behavior, which may contribute to financial statement fraud.

H5: Arrogance (CEO PICTURE) has a positive and significant effect on Financial Statement Fraud.

Methods

This study utilizes a quantitative research methodology, specifically implementing multiple regression analysis through EViews 13 software to examine panel data. The data is sourced from 13 Islamic commercial banks registered with the Financial Services Authority (OJK) in Indonesia as of December 2023. The research objective is to analyze the correlation between specific independent variables—Return on Assets (ROA), Board of Directors' Outspokenness (BDOUT), Total Accruals (TACC), Director Change (DCHANGE), and CEO Picture (CEO_PICTURE)—and the dependent variable, Financial Statement Fraud (FFR). The study employs purposive sampling to guarantee that the sample comprises banks that fulfill particular criteria, hence augmenting the relevance and reliability of the findings.

Table 2. Sample Selection Process

No.	Sample Criteria	Total
1.	Islamic banks registered with the Financial Services Authority (OJK) as of December 2023	13
2.	Islamic banks with no acquisitions or mergers between 2018–2023	10
3.	Islamic banks that published annual reports consistently from 2018–2023	10
4.	Islamic banks providing complete data required for this research, including ROA, BDOUT, TACC, DCHANGE, and CEO PICTURE for 2018–2023	10
Total research sample= 10 x 6		**60**

Table 2 delineates the sample selection method, specifying the criteria employed to determine the final study sample. Thirteen Islamic banks were first identified according to their registration with the OJK as of December 2023. The pool was modified by omitting banks that experienced acquisitions or mergers between 2018 to 2023, as these structural changes could impact the consistency and comparability of financial data. This criterion narrowed the sample to 10 banks.

The additional selection criterion mandated that these banks continuously issued annual reports from 2018 to 2023, so guaranteeing the availability of uninterrupted financial data during the study period. Furthermore, only banks that supplied comprehensive data for all variables necessary for the analysis—ROA, BDOUT, TACC, DCHANGE, and CEO_PICTURE—were used in the final sample. This resulted in a total of 10 Islamic commercial banks that satisfied all criteria.

The dataset encompasses six years (2018 to 2023) for each of the 10 banks, resulting in a total of 60 observations (10 banks × 6 years). This dataset underpins the multiple regression analysis, enabling the study to discern major characteristics affecting financial statement fraud in Islamic commercial banks in Indonesia.

Table 3. Variable Measurement

Variable	Indicator	Scale	Source
Financial Statement Fraud (FFR) (Y)	F-Score = *Accrual Quality* + *Financial Performance* Where: RSST Accrual = *(∠WC +∠NCO +∠FIN) / Average Total Assets* *Financial Performance = Change in receivable + Change in inventories + Change in cash sales + Change in earnings*	Ratio	Wibowo & Putra (Wibowo & Putra, 2023), Achmad et al. (2022)
Pressure (ROA) (X1)	$\frac{Net\ Profit}{\text{Total Asset}}$	Ratio	Skousen (Skousen et al., 2009)
Opportunity (BDOUT) (X2)	$\frac{Number\ of\ Independent\ Comm}{Number\ of\ commissioner}$	Ratio	Skousen (Skousen et al., 2009)
Rationalization (TACC) (X3)	Total Accrual (TACC) = *(Net Income – Cash Flow from Operating Activities) / Total Assets*	Ratio	Skousen (Skousen et al., 2009)
Competence (DCHANGE) (X4)	Changes in the Board of Directors (Dummy variable: 1 = change, 0 = no change)	Nominal	Wahyutomo & Marsono (Wahyutomo & Marsono, 2024) dan

			Nadia et al. (Nadia et al., 2023)
Arrogance (CEO PICTURE) (X5)	Frequency of CEO Pictures in Annual Reports	Nominal	Azizah et al. (Azizah et al., 2024), Puadi (Puadi et al., 2024)

Source: Secondary data, processed with EViews 13 (2024)

Descriptive Statistical Test

Table 4, which displays the descriptive statistics of the variables in this study, indicates that the mean value for Financial Statement Fraud (FFR) is 0.8894, with a maximum of 4.914 and a low of -0.3977, reflecting variability in the degree of fraud across the sampled observations. The Return on Assets (ROA), indicative of the pressure component in the Fraud Pentagon, has an average of 0.0160, with a range from -0.0713 to 0.1358, indicating moderate variability in profitability levels among the sampled Islamic banks.

Table 4. Descriptive Statistics Test

Statistic	FFR (Y)	ROA (X1)	BDOUT (X2)	TACC (X3)	DCHANGE (X4)	CEO PICT (X5)
Mean	0.8894	0.0160	0.6800	-0.0095	0.7333	4.0667
Median	0.8432	0.0110	0.6667	-0.0096	1.0000	4.0000
Max	4.914	0.1358	1.0000	0.1853	3.0000	6.0000
Min	-0.3977	-0.0713	0.5000	-0.5046	0.0000	3.0000
Std. Dev.	0.6187	0.0357	0.1266	0.1069	0.4459	0.9181
Observations	60	60	60	60	60	60

Source: Secondary data, processed with EViews 13 (2024)

The Board of Directors' Outspokenness (BDOUT), indicative of the opportunity component, has an average value of 0.6800, a maximum of 1.0000, and a minimum of 0.5000, reflecting a degree of consistency within this metric, as evidenced by the low standard deviation of 0.1266. The mean value of Total Accruals (TACC), which reflects rationalization, is -0.0095, with a maximum of 0.1853 and a minimum of -0.5046. The disparity in TACC figures may indicate divergent accounting procedures or justifications across these banks.

The Director Change (DCHANGE) variable, indicative of capacity, has a mean of 0.7333, suggesting that leadership changes are prevalent, with a maximum of 3.0000 and a minimum of 0.0000. This range indicates differing levels of stability among the banks' leadership. CEO Pictures (CEO PICT), indicative of arrogance, has a mean value of 4.0667, a maximum of 6.0000, a minimum of 3.0000, and a standard deviation of 0.9181. The data indicates variations in CEO visibility or image among the sampled banks.

The statistics demonstrate clear patterns within the Fraud Pentagon, suggesting that factors such as profitability, board assertiveness, accrual methods, leadership transitions, and CEO visibility may differentially influence the probability of financial statement fraud among the examined Islamic commercial banks.

Result and Discussions

Normality Test

Normality test conducted with 60 objects and turned out it does not satisfy the Jarque-Beraprobability as the result is 0.0000. It means that the data is not normally distributed. To normalize the data, the outliers is eliminated as it shows that the data are significantly different from the resto f observations (Ghozali, 2018). In this study, 15 data have extreme value and must be removed. The result of the data normality test after outliers is 0.7282 (> 0.05), this means that data is normally distributed.

Multicollinearity Test

Table 5, which displays the multicollinearity test findings, reveals that the correlation coefficients among the variables (ROA, BDOUT, TACC, DCHANGE, and CEO PICTURE) suggest negligible multicollinearity concerns in this model. All variables have a correlation coefficient beneath the ±0.8 threshold, indicating that none of the independent variables are significantly connected with each other.

The connection between ROA and BDOUT is -0.2998, while the correlation between ROA and CEO PICTURE is 0.3238; both represent low to moderate correlations. BDOUT and CEO PICTURE exhibit a moderate positive correlation of 0.4018, which is much below the threshold for multicollinearity concerns. TACC and DCHANGE have little correlations with other variables, ranging from -0.0004 to 0.1802, so further substantiating the lack of multicollinearity.

Table 5. Multicollinearity Test

Description	ROA	BDOUT	TACC	DCHANGE	CEO PICTURE
ROA	1.0000	-0.2998	-0.0359	-0.2615	0.3238
BDOUT	-0.2998	1.0000	0.1802	-0.0004	0.4018
TACC	-0.0359	0.1802	1.0000	0.0245	-0.1513
DCHANGE	-0.2615	-0.0004	0.0245	1.0000	-0.1654
CEO PICTURE	0.3238	0.4018	-0.1513	-0.1654	1.0000

Source: Secondary data, processed with EViews 13 (2024)

The findings suggest that the independent variables have minimal intercorrelations, permitting their inclusion in the regression model without substantial danger of multicollinearity impacting the results. This guarantees the reliability and validity of the results obtained from the regression analysis.

Heteroscedasticity Test

According to Table 6, which displays the outcomes of the Glejser test for heteroscedasticity, none of the independent variables exhibit statistically significant effects on the absolute residuals, as evidenced by the probability values (p-values) for each variable. All p-values exceed conventional significance thresholds (e.g., 0.05 or 0.1), with ROA at 0.9037, BDOUT at 0.6841, TACC at 0.4543, DCHANGE at 0.8147, and CEO_PICTURE at 0.6184. The elevated p-values indicate an absence of a meaningful association between the independent variables and the absolute residuals.

Table 6. Uji Glejser

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.082264	0.095640	0.860145	0.3950
ROA	0.037618	0.308983	0.121747	0.9037
BDOUT	0.036188	0.088276	0.409937	0.6841
TACC	0.064778	0.085700	0.755866	0.4543
DCHANGE	0.004871	0.020639	0.236000	0.8147
CEO_PICTURE	-0.006352	0.012650	-0.502161	0.6184

Source: Secondary data, processed with EViews 13 (2024)

The lack of statistical significance for these variables in the Glejser test indicates that heteroscedasticity is absent in the regression model. This indicates that the error terms exhibit homoscedasticity, a fundamental condition for the validity of ordinary least squares (OLS) regression. Consequently, we can ascertain that the model is free from heteroscedasticity, signifying that the variance of the residuals remains uniform across data. This conclusion corroborates the dependability of the regression results and guarantees that the computed coefficients are unbiased and efficient.

Autocorrelation Test

The Durbin-Watson statistic for this model, as indicated in Table 7, is 1.656619. The Durbin-Watson test identifies autocorrelation in regression residuals, with values near 2 indicating the absence of autocorrelation, values considerably below 2 indicating positive autocorrelation, and values significantly above 2 indicating negative autocorrelation.

Table 7. Dusbin Watson Test

Statistic	Value
R-squared	0.527875
Adjusted R-squared	0.467346
S.E. of regression	0.099430
F-statistic	8.721043
Prob(F-statistic)	0.000013
Mean dependent var	0.601603
S.D. dependent var	0.149014
Sum squared resid	0.385566
Durbin-Watson stat	1.656619

Source: Secondary data, processed with EViews 13 (2024)

The value of 1.656619 indicates proximity to 2, implying little to absent positive autocorrelation in the model's residuals. This conclusion corroborates the dependability of the regression results, as the lack of considerable autocorrelation signifies that the residuals are independently distributed. Consequently, the model's assumptions concerning error independence are probably maintained, thereby bolstering the validity of the predicted coefficients and the comprehensive regression analysis.

Best Model Selection Method in Panel Data Regression

The Chow Test results, as presented in Table 8, offer insights into the optimal model selection approach for panel data regression. The Cross-section F statistic is 2.172810, accompanied by a p-value of 0.0538, marginally exceeding the conventional significance threshold of 0.05. This suggests that there is limited evidence to dismiss the null hypothesis, which posits that a pooled model (common effects model) is adequate and that fixed effects are unnecessary. Nonetheless, the outcome approaches significance, indicating that the fixed effects model may warrant consideration in subsequent analyses.

Table 8. Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.172810	(9,30)	0.0538
Cross-section Chi-square	22.385121	9	0.0072

Source: Secondary data, processed with EViews (2024)

The Cross-section Chi-square statistic is 22.385121, with a p-value of 0.0072, indicating statistical significance at the 1% level. This outcome clearly indicates that the fixed effects model is superior to the pooled model, as it addresses unobserved heterogeneity among cross-sections (e.g., individual entities or temporal periods).

Collectively, these findings suggest that the fixed effects model is the more suitable option for this panel data regression, as it more effectively encapsulates the distinct attributes of each cross-section, resulting in more dependable and precise estimations.

Table 9. Hausman Test

Test Summary	Statistic Chi-Sq.	d.f.	Prob.
Cross-section random	8.556250	5	0.1281

Source: Secondary data, processed with EViews (2024)

According to Table 9, the Hausman Test results indicate the optimal model selection approach for panel data regression by assessing the suitability of the fixed effects against the random effects model. The cross-sectional random Chi-Square

statistic is 8.556250, with a p-value of 0.1281. Given that this p-value exceeds the conventional significance level of 0.05, we do not reject the null hypothesis of the Hausman Test, indicating a preference for the random effects model over the fixed effects model.

The insignificance of the Hausman Test suggests that the disparities between the random effects and fixed effects estimators are not systematic, indicating that the random effects model is a consistent and efficient option. Consequently, for this panel data regression, the random effects model is presumably the superior choice, as it accommodates both time-variant and cross-sectional variance while preserving efficiency. This outcome endorses the application of the random effects model for the analysis of the specified data set.

Panel Data Regression Model with REM Model

Table 10. Random Effect Model (REM) Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.433507	0.164166	2.640672	0.0118
ROA	1.411665	0.555221	2.541535	0.0143
BDOUT	0.324168	0.152244	2.127932	0.0303
TACC	0.896564	0.139736	6.416749	0.0000
DCHANGE	0.045196	0.034187	1.322079	0.1999
CEO PICTURE	0.022931	0.022046	1.040171	0.3047
Effects Specification				
Effect Type			**S.D.**	**Rho**
Cross-section random			0.038918	0.1438
Idiosyncratic random			0.094973	0.8562
Weighted Statistics				
R-squared	0.527875	Mean dependent var		0.601603
Adjusted R-squared	0.467346	S.D. dependent var		0.149014
S.E. of regression	0.099430	Sum squared resid		0.385566
F-statistic	8.721043	Durbin-Watson stat		1.656619
Prob(F-statistic)	0.000013			

Source: Secondary data, processed with EViews (2024)

Panel data regression results

FFR= 0.4335 + 1.412 ROA + 0.3425 BDOUT + 0.8967 TACC + 0.0452 DCHANGE + 0.0229 CEO_PICTURE

Table 11. F Test

R-squared	0.527875	Mean dependent var	0.601603
Adjusted R-squared	0.467346	S.D. dependent var	0.149014
S.E. of regression	0.099430	Sum squared resid	0.385566
F-statistic	8.721043	Durbin-Watson stat	1.656619
Prob(F-statistic)	0.000013		

Source: Secondary data, processed with EViews 13 (2024).

The result of F-statistic= 8.72 > F table = 2.49 (0.000013<0.05). This means that Pressure (ROA), Opportunity (BDOUT), Rationalization (TACC), Ability (DCHANGE), and Arrogance (CEO PICTURE) simultaneously on Financial Statement Fraud (FFR).

The Adjusted R Square value in the coefficient of determination (R2) test is 0.4673 or 47%. This shows that Pressure (ROA), Opportunity (BDOUT), Rationalization (TACC), Competence (DCHANGE), and Arrogance (CEO PICTURE) contribute to the influence on Financial Statement Fraud (FFR) by 47%, while other factors not covered in this study have an impact on the remaining 53%.

Table 12. T Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.433507	0.164166	2.640672	0.0118
ROA	1.411665	0.553261	2.551535	0.0148
BDOUT	0.342458	0.152344	2.247932	0.0303
TACC	0.896654	0.139736	6.416749	0.0000
DCHANGE	0.045196	0.034187	1.322019	0.1939
CEO_PICTURE	0.022931	0.022046	1.040171	0.3047

Source: Secondary data, processed with EViews (2024)

The hypotheses testing results for each independent variable's influence on Financial Statement Fraud (FFR) are as follows:

Pressure (ROA)

The regression coefficient for Pressure (ROA) is 1.412, indicating a positive effect. The t-value of Pressure (ROA) is 0.2553, which is greater than the t-table value of 2.0227, and the significance level is 0.0148, which is less than 0.05. This result indicates that Pressure (ROA) has a positive and significant partial effect on Financial Statement Fraud (FFR). Therefore, Hypothesis 1 is accepted.

Opportunity (BDOUT)

The regression coefficient for Opportunity (BDOUT) is 0.3425, indicating a positive effect. The t-value of Opportunity (BDOUT) is 2.2480, which is greater than the t-table value of 2.0227, and the significance level is 0.0303, which is less than 0.05. This result suggests that Opportunity (BDOUT) has a positive and significant effect on Financial Statement Fraud (FFR). Thus, Hypothesis 2 is rejected, as the results do not support the expected outcome.

Rationalization (TACC)

The regression coefficient for Rationalization (TACC) is 0.8967, indicating a positive effect. The t-value of Rationalization (TACC) is 6.4167, which is greater than the t-table value of 2.0227, and the significance level is 0.0000, which is less than 0.05. This outcome implies that Rationalization (TACC) has a positive and significant effect on Financial Statement Fraud (FFR). Therefore, Hypothesis 3 is accepted.

Competence (DCHANGE)

The regression coefficient for Competence (DCHANGE) is 0.0452, which is positive. However, the t-value of Competence (DCHANGE) is 1.3220, which is less than the t-table value of 2.0227, and the significance level is 0.1939, which is greater than 0.05. This result indicates that Competence (DCHANGE) has a positive but insignificant partial effect on Financial Statement Fraud (FFR). Thus, Hypothesis 4 is rejected.

Arrogance (CEO PICTURE)

The regression coefficient for Arrogance (CEO PICTURE) is 0.0229, indicating a positive effect. However, the t-value of Arrogance (CEO PICTURE) is 1.0402, which

is less than the t-table value of 2.0227, and the significance level is 0.3047, which is greater than 0.05. This result shows that Arrogance (CEO PICTURE) has a positive but insignificant partial effect on Financial Statement Fraud (FFR). Therefore, Hypothesis 5, which states that "Arrogance (CEO PICTURE) partially has a positive and significant effect on Financial Statement Fraud (FFR)," is rejected.

The Effect of Pressure (ROA) on Financial Statement Fraud

The findings indicate that Pressure, as measured by Return on Assets (ROA), has a positive and significant effect on Financial Statement Fraud (FFR). This supports the theory that fraud often originates from managerial pressure to meet financial targets (Arifin, 2020: 6). Specifically, ROA influences the likelihood of financial statement fraud, as managers may feel compelled to achieve or exceed profitability targets. When a company generates profits through asset utilization in the current period, management faces additional pressure to sustain or increase these returns in future periods (Nikmah & Arjoen, 2023). This implies that as ROA targets increase, so does the pressure on management, thereby raising the potential for fraudulent reporting.

These results align with previous studies, including those by Nikmah & Arjoen (2023), Solikhin and Prasetya (Solikhin & Parasetya, 2023), Farida et al. (Farida et al., 2023), Noviana et al. (Noviana et al., 2022) and Sembiring & Zulfiati (Sembiring & Zulfiati, 2020), all of which found that Pressure (ROA) has a positive and significant effect on Financial Statement Fraud (FFR).

The Effect of Opportunity (BDOUT) on Financial Statement Fraud

Opportunity, as measured by the ratio of independent commissioners (BDOUT), has a positive and significant effect on Financial Statement Fraud (FFR) in Islamic Commercial Banks during the 2018–2023 period. Although it was initially expected that Opportunity (BDOUT) would have a negative and significant effect on FFR, the findings suggest otherwise. According to Arifin (Arifin, 2020), one factor that increases the opportunity for fraud is a weak internal control system. When the proportion of independent commissioners decreases, internal parties have more freedom to engage in financial statement fraud (Skousen et al., 2009). However, the results indicate that a higher ratio of independent commissioners (BDOUT) is associated with an increased opportunity for management to commit fraudulent financial reporting. This suggests that the presence of independent commissioners,

as measured by BDOUT, may not be effective in detecting or preventing fraudulent financial statements.

These findings contradict studies by Wahyutomo & Marsono (Wahyutomo & Marsono, 2024), Fadhilah et al. (N. H. K. Fadhilah et al., 2024) and Alvionika & Meiranto (Alvionika & Meiranto, 2021), which argue that Opportunity (BDOUT) has a negative and significant effect on Financial Statement Fraud, indicating that a higher ratio of independent commissioners can reduce fraud potential. Conversely, the current results align with prior research by Azizah et al. (Azizah et al., 2024), Fadhilah & Widyananto (N. H. K. Fadhilah et al., 2024) and Almujaddedi & Hayati (Almujaddedi & Hayati, 2022), which also found that Opportunity (BDOUT) has a positive and significant effect on Financial Statement Fraud.

The Effect of Rationalization (TACC) on Financial Statement Fraud

This study provides evidence that Rationalization, as measured by the Total Accrual (TACC) ratio, has a positive and significant effect on Financial Statement Fraud (FFR) in Islamic Commercial Banks during the 2018–2023 period. This finding suggests that an increase in Rationalization (TACC) is associated with a higher likelihood of Financial Statement Fraud. This result aligns with the perspective of Arifin (Arifin, 2020), who emphasizes the importance of rationalization as a key element in fraud. Skousen et al. (Skousen et al., 2009) also support this view, asserting that the TACC ratio can serve as an indicator of rationalization and that it has a significant effect on Financial Statement Fraud.

These findings are consistent with prior research by Puadi et al. (Puadi et al., 2024), Nadia et al. (Nadia et al., 2023), Cahyani & Annisa (Cahyani & Annisa, 2021), Sembiring & Zulfiati (Sembiring & Zulfiati, 2020) and Khoirunnisa et al. (Khoirunnisa et al., 2020), all of whom found that Rationalization (TACC) has a positive and significant effect on Financial Statement Fraud (FFR).

The Effect of Competence (DCHANGE) on Financial Statement Fraud

This study found that Competence, as measured by director changes (DCHANGE), has a positive but insignificant effect on Financial Statement Fraud (FFR) in Islamic Commercial Banks for the period 2018–2023. Initially, it was expected that Competence (DCHANGE) would have a significant effect on FFR, based

on Arifin's (2020: 6) asssertion that large-scale frauds typically require individuals with specific skills.

However, the findings indicate that Competence (DCHANGE) does not have a significant effect on Financial Statement Fraud, suggesting that changes in the Board of Directors are not a primary factor in detecting fraudulent financial statements within Islamic banks. Rather, the presence of the Board of Directors in management appears to fulfill regulatory requirements for good governance rather than actively influencing fraud risk (N. H. K. Fadhilah et al., 2024).

These results contradict the findings of Nikmah & Arjoen (Nikmah & Arjoen, 2023), Nurhakim & Harto (Nurhakim & Harto, 2023) and Nadia et al. (Nadia et al., 2023), who reported a positive and significant effect of Competence (DCHANGE) on Financial Statement Fraud. However, they align with research by Roza (Roza, 2024), Fadhilah & Widyananto (F. N. Fadhilah & Widyananto, 2022), which also found no significant effect of Competence (DCHANGE) on financial statement fraud.

The Effect of Arrogance (CEO PICTURE) on Financial Statement Fraud

This study found that Arrogance, as proxied by the frequency of the CEO's picture in financial statements (CEO PICTURE), has a positive but insignificant effect on Financial Statement Fraud (FFR) in Islamic Commercial Banks for the period 2018–2023. Initially, it was hypothesized that Arrogance (CEO PICTURE) would have a significant effect on FFR, based on Crowe Horwath's (2011) assertion that CEOs with a large ego may believe they are exempt from internal controls, leading them to think they can avoid detection if they commit fraud.

However, the findings of this study suggest that Arrogance (CEO PICTURE) does not significantly impact Financial Statement Fraud. This implies that the presence of CEO photos in financial reports, which may symbolize ego or self-importance, is not a primary factor in detecting or predicting fraudulent financial statements.

These results contradict the findings of Nikmah & Arjoen (Nikmah & Arjoen, 2023), Nurhakim & Harto (Nurhakim & Harto, 2023) and Nadia et al. (Nadia et al., 2023), who reported a positive and significant effect of Arrogance (CEO PICTURE) on Financial Statement Fraud. However, they align with research by Roza (Roza, 2024), Fadhilah et al. (N. H. K. Fadhilah et al., 2024) and Nurhakim & Harto (Nurhakim & Harto, 2023), which found that Arrogance (CEO PICTURE) has a positive but insignificant effect on Financial Statement Fraud.

Conclusion

The findings of this study contribute to the understanding of factors influencing Financial Statement Fraud (FFR) in Islamic Commercial Banks for the period 2018–2023. The conclusions drawn from this analysis indicate that Pressure (ROA) and Rationalization (TACC) have a positive and significant effect on Financial Statement Fraud. This suggests that higher financial targets (ROA) and rationalizations (as reflected in TACC) increase the likelihood of fraudulent financial reporting. Managers under pressure to meet financial targets or justify unethical practices may be more inclined to manipulate financial statements. This finding aligns with prior research indicating that pressure and rationalization are critical elements in driving fraudulent behavior.

Opportunity (BDOUT) also shows a positive and significant effect on Financial Statement Fraud, which is contrary to the initial hypothesis. Although independent commissioners (BDOUT) are expected to reduce the risk of fraud by enhancing oversight, the results suggest that the presence of independent commissioners may not always function as an effective control mechanism. This outcome could indicate that, in certain cases, the presence of independent board members is symbolic rather than functional, providing limited deterrence against fraudulent behavior.

Competence (DCHANGE) and Arrogance (CEO PICTURE) both have a positive but statistically insignificant effect on Financial Statement Fraud. This implies that while changes in directors (DCHANGE) and signs of CEO self-importance (CEO PICTURE) might be associated with a slight increase in fraud risk, they are not primary indicators for predicting fraud. This finding suggests that the mere presence of skilled individuals or the CEO's influence does not necessarily lead to fraudulent behavior in the absence of other motivating factors. This is consistent with the idea that competence and arrogance alone do not directly drive fraud but may support it when combined with other elements like pressure or opportunity.

The study's findings have practical implications for Islamic financial institutions and regulators. Understanding that pressure, rationalization, and opportunity can significantly influence fraud risk highlights the need for robust internal control mechanisms to monitor these elements more effectively. Specifically, Islamic Commercial Banks should consider strengthening oversight practices, especially regarding performance targets and rationalizations that management may use to justify unethical behavior.

For further research, it is recommended to explore additional proxies that incorporate Islamic or sharia-compliant principles to better capture the nuances of fraud in Islamic financial institutions. For example, integrating measures aligned with Islamic business ethics and governance principles could provide a more comprehensive understanding of fraud determinants within sharia-compliant institutions. Additionally, expanding the scope of research to include other types of Islamic financial entities, such as Islamic Rural Banks (BPRS) or Islamic Business Units (UUS), could enhance the generalizability of the findings. These institutions, which operate under sharia principles but may have different governance structures and fraud risks, could offer valuable insights into the broader landscape of Islamic finance.

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