

Research Article

Analysis the Effect of Fraud Pentagon and Whistleblowing System on Financial Statement Fraud in Indonesian State-Owned Enterprises (2021–2024)

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Abstract: Financial statement fraud remains one of the major challenges in maintaining the credibility and transparency of corporate financial reporting, particularly in Indonesian State-Owned Enterprises (SOEs). This study aims to examine the effect of the Fraud Pentagon elements: pressure, opportunity, rationalization, competence, and arrogance, as well as the whistleblowing system on financial statement fraud in Indonesian SOEs during the 2021–2024 period. This research employed a quantitative approach using secondary data obtained from the annual reports and financial statements of Indonesian SOEs. Financial statement fraud was measured using the Beneish M-Score, while pressure, opportunity, rationalization, competence, arrogance, and the whistleblowing system were measured using their respective proxies. The data were analyzed using logistic regression with EViews 10. The findings indicate that pressure, proxied by financial stability, and opportunity, proxied by ineffective monitoring, have a significant effect on financial statement fraud. Meanwhile, rationalization, competence, arrogance, and the whistleblowing system do not significantly affect financial statement fraud. These findings suggest that financial pressure experienced by companies and weaknesses in monitoring mechanisms are important factors associated with the occurrence of financial statement fraud in Indonesian SOEs. This study contributes to the literature on fraud detection by providing empirical evidence regarding the application of the Fraud Pentagon theory and the whistleblowing system in the context of Indonesian State-Owned Enterprises.

Keywords: Beneish M-Score; Financial Statement Fraud; Fraud Pentagon; State-Owned Enterprises; Whistleblowing System.

1. Introduction

Financial statement fraud has become one of the most critical forms of occupational fraud, particularly in Indonesian State-Owned Enterprises (SOEs), due to its substantial financial impact and its potential to undermine public trust in the management of state assets. Several high-profile fraud cases involving SOEs, such as the alleged inventory inflation and transaction manipulation at PT Indofarma Tbk during 2020–2023 and the revenue manipulation case of PT Garuda Indonesia in 2018, have highlighted persistent weaknesses in corporate governance and internal control systems. Furthermore, audit reports issued by the Audit Board of Indonesia during 2024 to the first semester of 2025 identified numerous significant findings in SOEs, while the Survey Fraud Indonesia (SFI) 2025 reported that SOEs remain among the sectors most affected by occupational fraud, with financial statement fraud accounting for 40.2% of reported cases and generating losses ranging from IDR 1 billion to IDR 50 billion per case. These findings indicate that although financial statement fraud occurs less frequently than other fraud schemes, it produces considerably greater financial consequences.

Numerous studies have attempted to explain the occurrence of financial statement fraud through the evolution of fraud theories. The Fraud Triangle proposed by Cressey in 1953 introduced pressure, opportunity, and rationalization as the primary determinants of fraudulent behavior. Subsequently, Wolfe & Hermanson (2004) extended this framework into the Fraud Diamond by incorporating capability, while Horwath (2011) further developed the Fraud Pentagon by adding competence and arrogance as additional determinants. Compared with earlier models, the Fraud Pentagon is considered more suitable for explaining

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fraud committed by managerial personnel who possess authority, access to organizational resources, and the capability to manipulate internal control systems. Although the Fraud Hexagon introduces collusion as an additional factor, empirical measurement of collusion remains difficult in secondary-data research because of its concealed nature and the absence of objective indicators. Consequently, the Fraud Pentagon is regarded as a more operational and applicable framework for empirical research involving financial statement fraud.

Previous empirical studies have investigated the relationship between the Fraud Pentagon elements and financial statement fraud using various proxies and measurement models. Nevertheless, their findings remain inconsistent across different research settings. In addition, organizations have increasingly implemented whistleblowing systems (WBS) as an internal control mechanism to facilitate confidential reporting of suspected violations and fraud. International evidence suggests that effective whistleblower programs can reduce the likelihood of financial statement fraud, whereas studies conducted in Indonesia have produced mixed results regarding the effectiveness of whistleblowing systems. Furthermore, previous research has predominantly examined the whistleblowing system as a moderating variable rather than as an independent determinant of financial statement fraud. This indicates that empirical evidence concerning the direct influence of whistleblowing systems on financial statement fraud, particularly within Indonesian SOEs, remains limited.

Another methodological issue concerns the measurement of financial statement fraud. Various fraud detection models have been employed in previous studies; however, this study adopts the Beneish M-Score because it has been widely recognized as an effective analytical model for identifying earnings manipulation through eight financial ratios, namely the Days Sales in Receivables Index (DSRI), Gross Margin Index (GMI), Asset Quality Index (AQI), Sales Growth Index (SGI), Depreciation Index (DEPI), Sales, General and Administrative Expenses Index (SGAI), Leverage Index (LVGI), and Total Accruals to Total Assets (TATA) (Beneish, 1999). Although several studies have demonstrated the effectiveness of the Beneish M-Score in detecting financial statement fraud, its application in the context of Indonesian State-Owned Enterprises remains relatively underexplored.

Based on these considerations, this study addresses three main research problems. First, previous findings regarding the influence of the Fraud Pentagon elements on financial statement fraud remain inconclusive. Second, limited empirical evidence exists regarding the direct effect of whistleblowing systems on financial statement fraud because most previous studies have positioned whistleblowing systems as moderating variables. Third, further empirical investigation is required to evaluate the applicability of the Beneish M-Score in detecting financial statement fraud within Indonesian SOEs during the 2021–2024 period, which reflects recent governance reforms and the mandatory implementation of whistleblowing systems under the Regulation of the Minister of State-Owned Enterprises Number PER-2/MBU/03/2023.

To address these issues, this study employs the Fraud Pentagon framework together with the whistleblowing system as independent variables to examine their effects on financial statement fraud measured using the Beneish M-Score. Logistic regression analysis is applied to analyze secondary data collected from the annual reports and financial statements of Indonesian State-Owned Enterprises during the 2021–2024 period.

The contributions of this study are threefold. First, it extends the empirical literature by examining the direct influence of the whistleblowing system as an independent variable, an approach that has received limited attention in previous studies. Second, it provides updated empirical evidence regarding the effectiveness of the Fraud Pentagon framework in explaining financial statement fraud within Indonesian SOEs under the latest corporate governance environment. Third, it contributes additional evidence regarding the applicability of the Beneish M-Score as a financial statement fraud detection model in Indonesian State-Owned Enterprises.

2. Literature Review

Theory of Planned Behaviour

The Theory of Planned Behavior (TPB), developed by Ajzen (1991), explains that individual behavior is primarily driven by behavioral intention, which is influenced by three factors: attitude, subjective norms, and perceived behavioral control. Attitude refers to an individual's evaluation of a behavior, subjective norms represent perceived social pressure to perform or avoid a behavior, and perceived behavioral control reflects an individual's perception of their ability to perform that behavior. These three components jointly determine whether an individual intends to engage in a particular action.

In the context of financial reporting, TPB provides a theoretical foundation for explaining why managers may intentionally engage in financial statement fraud. Managerial decisions to manipulate financial information are not spontaneous but result from a cognitive

evaluation of organizational pressures, available opportunities, ethical considerations, and perceived consequences. Accordingly, financial statement fraud can be viewed as planned behavior arising from behavioral intentions rather than accidental misconduct.

This study applies TPB as the underlying theory linking the Fraud Pentagon and the Whistleblowing System to financial statement fraud. The Fraud Pentagon dimensions: pressure, opportunity, rationalization, competence, and arrogance, represent psychological and situational factors that shape managerial intentions to commit fraud (Horwath, 2011). Conversely, an effective Whistleblowing System (WBS) strengthens ethical norms and perceived behavioral control by providing secure reporting mechanisms, thereby discouraging fraudulent behavior (Zhang et al., 2025; Wahyuni et al., 2021). Therefore, TPB provides an appropriate theoretical framework for explaining how behavioral intentions influence the occurrence and prevention of financial statement fraud.

Fraud Pentagon Theory

The Fraud Pentagon Theory, introduced by Horwath (2011), extends the Fraud Triangle by incorporating two additional dimensions, namely competence and arrogance, resulting in five elements: pressure, opportunity, rationalization, competence, and arrogance. Compared with previous fraud models, the Fraud Pentagon provides a more comprehensive framework for explaining financial statement fraud because it considers not only organizational conditions but also the capability and personal characteristics of perpetrators.

Pressure represents the motivation that encourages management to manipulate financial statements when firms experience financial difficulties or are required to achieve demanding performance targets. In this study, pressure is proxied by financial stability (ACHANGE), which reflects changes in total assets. Companies experiencing unstable financial conditions tend to face greater pressure to maintain favorable financial performance, thereby increasing the likelihood of financial statement fraud (Skousen et al., 2009). Previous studies consistently report that financial stability significantly influences financial statement fraud (Tamaela et al., 2025; Salsabilla & Fitri, 2023; Fitriyah et al., 2021).

Opportunity refers to circumstances that enable fraud to occur because of weak monitoring and ineffective internal control systems (Horwath, 2011). This study measures opportunity using the proportion of independent commissioners (BDOUT) as a proxy for ineffective monitoring. A lower proportion of independent commissioners reduces the effectiveness of corporate oversight, thereby increasing opportunities for management to manipulate financial statements. Empirical evidence generally supports the positive relationship between ineffective monitoring and financial statement fraud, although several studies report inconsistent findings depending on corporate governance quality (Soesanto et al., 2024; Ghaisani & Supatmi, 2023).

Rationalization reflects the cognitive process through which individuals justify unethical behavior. Auditor change (AUDCHANGE) is employed as its proxy because frequent auditor rotation may reduce audit effectiveness and provide management with greater flexibility to conceal financial reporting irregularities. Although auditor rotation is regulated in Indonesia, abnormal auditor changes may indicate attempts to rationalize fraudulent reporting. Previous findings regarding this relationship remain inconclusive, with several studies reporting significant effects while others find no association between auditor changes and financial statement fraud.

Competence refers to an individual's capability to commit fraud by utilizing knowledge, authority, and experience. Director change (DCHANGE) is used as its proxy because changes in top management may create opportunities for individuals possessing adequate expertise to exploit weaknesses in internal control systems or conceal irregularities inherited from previous management. However, prior empirical studies report mixed findings regarding the influence of director changes on financial statement fraud.

Finally, arrogance reflects excessive self-confidence and a belief that organizational controls do not apply to individuals occupying positions of authority. This study measures arrogance using the Frequent Number of CEO's Pictures (CEOPIC) disclosed in annual reports. CEOs with stronger narcissistic characteristics tend to project greater self-importance, potentially increasing the likelihood of overriding internal controls and engaging in unethical financial reporting. Nevertheless, previous studies have produced inconsistent evidence regarding the relationship between CEO narcissism and financial statement fraud.

Overall, previous studies indicate that the Fraud Pentagon provides a useful framework for explaining financial statement fraud. However, inconsistent findings regarding several dimensions suggest that the effectiveness of Fraud Pentagon proxies may vary across institutional settings and corporate governance environments. Therefore, this study re-examines the Fraud Pentagon model in Indonesian State-Owned Enterprises by employing financial stability, ineffective monitoring, auditor change, director change, and CEO picture frequency as proxies for its five dimensions.

Whistleblowing System

A Whistleblowing System (WBS) is a formal organizational mechanism that enables employees and other stakeholders to report fraud, unethical conduct, or legal violations occurring within an organization (Komite Nasional Kebijakan Governance, 2008). Beyond functioning as a reporting channel, a WBS represents an essential component of internal control and good corporate governance because it facilitates early fraud detection, enhances organizational transparency, and strengthens accountability (Jayanti & Suardana, 2019). Within the perspective of the Theory of Planned Behavior (TPB), an effective whistleblowing system strengthens subjective norms and perceived behavioral control by encouraging individuals to report misconduct through secure and reliable reporting mechanisms rather than participating in fraudulent activities (Zhang et al., 2025; Wahyuni et al., 2021).

Previous studies generally suggest that an effective whistleblowing system reduces the likelihood of financial statement fraud. Wiedman & Zhu (2023) demonstrate that the implementation of the SEC Whistleblower Program significantly decreases financial reporting fraud, particularly in firms with weaker internal compliance systems. Similarly, Soesanto et al. (2024) report that whistleblowing systems negatively influence financial statement fraud in Indonesian companies, while Raihan et al. (2024) find that whistleblowing systems weaken the relationship between several fraud drivers and financial statement fraud. Nevertheless, empirical findings remain inconclusive, as some studies report that whistleblowing systems do not significantly prevent fraud when organizational ethical culture, employee awareness, or management commitment are insufficient to support their implementation.

Unlike most previous studies that examine whistleblowing systems as moderating variables or evaluate their implementation in private firms, this study treats the Whistleblowing System as an independent variable and measures its implementation based on the Komite Nasional Kebijakan Governance (2008) guidelines covering structural, operational, and maintenance aspects. This approach provides a more comprehensive assessment of WBS implementation and extends existing evidence by examining its direct effect on financial statement fraud in Indonesian State-Owned Enterprises, which are subject to higher public accountability and specific corporate governance regulations.

Financial Statement Fraud

Financial statement fraud refers to the intentional misstatement or omission of material information in financial reports to mislead users of financial statements and influence economic decision-making (Rezaee & Riley, 2010). Such fraudulent practices may include revenue manipulation, improper asset valuation, fictitious transactions, delayed expense recognition, and inadequate financial disclosure. Financial statement fraud reduces the reliability of financial reporting, weakens stakeholder confidence, and may result in substantial financial losses for investors, creditors, and other stakeholders. Consequently, detecting financial statement fraud has become a major concern for regulators, auditors, and researchers.

Various approaches have been developed to detect financial statement fraud. Earlier studies frequently employed discretionary accrual models, the F-Score model, or fraud occurrence based on enforcement actions as proxies for financial statement fraud. However, the Beneish M-Score, developed by Beneish (1999), has become one of the most widely adopted analytical models because it identifies potential earnings manipulation through eight financial ratios reflecting abnormalities in receivables, profitability, asset quality, sales growth, depreciation, operating expenses, leverage, and accruals. Compared with other detection models, the Beneish M-Score provides a practical and objective approach for identifying firms with a high probability of financial statement manipulation using publicly available financial statement data.

Previous empirical studies have extensively utilized the Beneish M-Score in examining financial statement fraud. Studies by Tamaela et al. (2025), Soesanto et al. (2024), Salsabilla & Fitri (2023), and Fitriyah et al. (2021) employed the Beneish M-Score to investigate the influence of corporate governance mechanisms and fraud-related factors on financial statement fraud. Nevertheless, most previous studies focused either on listed companies from specific industrial sectors or on corporate governance variables alone. Limited evidence is available regarding the application of the Beneish M-Score to Indonesian State-Owned Enterprises (SOEs) while simultaneously incorporating the Fraud Pentagon and Whistleblowing System frameworks. Therefore, this study employs the Beneish M-Score as a proxy for financial statement fraud to provide further empirical evidence on fraud detection within the unique governance environment of Indonesian SOEs.

Hypothesis Development

The Effect of Pressure on Financial Statement Fraud

Pressure represents the motivation that encourages management to manipulate financial statements when companies experience financial instability or are required to meet demanding performance targets (Horwath, 2011). In this study, pressure is proxied by financial stability (ACHANGE), which reflects changes in total assets. From the perspective of the Theory of Planned Behavior (TPB), financial pressure may foster favorable attitudes toward earnings manipulation because managers perceive financial statement fraud as a means of maintaining organizational performance and stakeholder confidence. Previous studies consistently report that financial stability significantly increases the likelihood of financial statement fraud (Tamaela et al., 2025; Salsabilla & Fitri, 2023; Fitriyah et al., 2021). Therefore, the first hypothesis is formulated as follows:

H1: Pressure has a positive effect on financial statement fraud.

The Effect of Opportunity on Financial Statement Fraud

Opportunity arises from weak internal control systems and ineffective monitoring that enable fraud to occur with a lower probability of detection (Horwath, 2011). This study measures opportunity using the proportion of independent commissioners as a proxy for ineffective monitoring. According to TPB, ineffective monitoring increases perceived behavioral control because managers believe fraudulent activities can be conducted without significant consequences. Prior studies generally demonstrate that ineffective monitoring increases the risk of financial statement fraud, although several findings remain inconsistent across industries and governance environments (Soesanto et al., 2024; Ghaisani & Supatmi, 2023). Accordingly, the second hypothesis is proposed as follows:

H2: Opportunity has a positive effect on financial statement fraud.

The Effect of Rationalization on Financial Statement Fraud

Rationalization refers to the process by which individuals justify unethical actions to maintain consistency with their personal values (Horwath, 2011). In this study, rationalization is proxied by auditor change, as frequent or abnormal auditor rotation may reduce audit effectiveness and provide management with greater opportunities to conceal financial reporting irregularities. Within the TPB framework, rationalization shapes positive attitudes toward fraudulent behavior by making such actions appear acceptable under certain circumstances. Although previous studies report mixed findings regarding the relationship between auditor change and financial statement fraud, auditor rotation remains an important indicator of potential fraud risk (Maryadi et al., 2020; Sasongko & Wijayantika, 2019). Therefore, the following hypothesis is proposed:

H3: Rationalization has a positive effect on financial statement fraud.

The Effect of Competence on Financial Statement Fraud

Competence reflects an individual's capability to commit fraud by utilizing knowledge, authority, and experience (Horwath, 2011). Director change is employed as its proxy because changes in top management may create transitional conditions that can be exploited by individuals possessing sufficient expertise to manipulate financial reporting. From the TPB perspective, competence strengthens perceived behavioral control by increasing managers' confidence in their ability to execute fraudulent actions successfully. Previous empirical studies have reported inconsistent results regarding the relationship between director changes and financial statement fraud, suggesting the need for further investigation, particularly in State-Owned Enterprises (Ghaisani & Supatmi, 2023; Hastuti et al., 2023). Accordingly, the fourth hypothesis is formulated as follows:

H4: Competence has a positive effect on financial statement fraud.

The Effect of Arrogance on Financial Statement Fraud

Arrogance reflects excessive self-confidence and the belief that organizational rules and internal controls do not apply to individuals occupying positions of authority (Horwath, 2011). This study uses the frequency of CEO pictures in annual reports as a proxy for managerial arrogance. CEOs with stronger narcissistic tendencies may perceive themselves as less constrained by corporate governance mechanisms, thereby increasing the likelihood of financial statement fraud. Nevertheless, empirical findings remain inconsistent, with some studies reporting significant relationships while others find no effect (Ghaisani & Supatmi, 2023; Triastuti et al., 2020). Therefore, the following hypothesis is proposed:

H5: Arrogance has a positive effect on financial statement fraud.

The Effect of Whistleblowing System on Financial Statement Fraud

A whistleblowing system serves as an internal governance mechanism that facilitates the reporting of unethical or fraudulent activities and strengthens organizational accountability (Komite Nasional Kebijakan Governance, 2008). Within the TPB framework, an effective whistleblowing system enhances subjective norms and perceived behavioral control by

encouraging employees to report misconduct rather than tolerate or participate in fraudulent activities. Previous studies generally indicate that whistleblowing systems reduce financial statement fraud by improving fraud detection and strengthening internal governance (Soesanto et al., 2024; Wiedman & Zhu, 2023). Based on these arguments, the final hypothesis is formulated as follows:

H6: The Whistleblowing System has a negative effect on financial statement fraud.

3. Proposed Method

This study employs a quantitative research design to examine the influence of the Fraud Pentagon dimensions and the Whistleblowing System on financial statement fraud in Indonesian State-Owned Enterprises (SOEs). Secondary data were collected from audited annual reports and financial statements published on the official websites of each SOE for the 2021–2024 period. The study focuses exclusively on non-financial SOEs because the Beneish M-Score requires financial information that is more appropriately applied to non-financial companies (Beneish, 1999).

The population consists of all non-financial SOE parent companies listed in the Ministry of State-Owned Enterprises portfolio during the observation period. The sample was selected using purposive sampling based on three criteria: (1) non-financial SOEs operating during 2021–2024, (2) companies providing complete annual reports and financial statements required for calculating all research variables, and (3) companies presenting financial statements in Indonesian Rupiah (IDR). Based on these criteria, 25 SOEs were selected, resulting in 100 firm-year observations.

This research used one dependent variable, and six independent variables. For the variable measurement is shown in table 1.

Table 1. Operational Definition and Measurement of Variables.

Variable	Dimension	Operational Definition	Indicator	Scale
Pressure (X ₁)	Financial Stability	Financial stability describes the financial condition of a company that is in a stable state, which in this research is measured using the total asset change ratio (ACHANGE). Ineffective monitoring reflects weaknesses in the company's internal control system, which may create opportunities for individuals to act in their own interests. This variable is measured by the proportion of independent board of commissioners (BOC) in the BOC structure.	$ACHANGE = \frac{\text{Total asset (t)} - \text{Total asset (t-1)}}{\text{Total Asset (t-1)}}$ (Amalia & Triyanto, 2022)	Ratio
Opportunity (X ₂)	Ineffective Monitoring	Change in auditor indicates a situation in which a company replaces its external auditor, which is used as an indicator to	$BDOUT = \frac{\text{Number of Independent BOC}}{\text{Total number of BOC}}$ (Amalia & Triyanto, 2022)	Ratio
Rationalization (X ₃)	Change in Auditor	Companies that did not experience an auditor change during the 2021 – 2024 period are assigned a value of 0, while companies that experienced an auditor change during the same		Nominal

		measure the potential rationalization of fraudulent behavior.	period are assigned a value of 1.	
			(Putra, 2022)	
Competence (X ₄)	Change in Director	Change in director refers to the replacement of members of the board of directors, which may influence managerial policies and strategic decision-making within the company.	Companies that experienced a change in directors during the observation period are coded as 1, whereas companies with no director changes are coded as 0.	Nominal
Arrogance (X ₅)	Frequent Number of CEO's Pictures	Frequent Number of CEO's Pictures disclosed in the annual report represents excessive self-confidence, which may indicate a higher potential for fraudulent behavior.	The Frequent Number of CEO's Pictures is measured by counting the number of CEO's picture presented in the company's annual report during the observation period from 2021 to 2024.	Nominal
			(Octaviana, 2022)	
Whistleblowing System (X ₆)	WBS Indicators	The Whistleblowing System (WBS) in this research refers to indicators issued by the National Committee on Governance that should be adopted by companies.	WBS = $\frac{\text{Number of WBS items applied}}{\text{Number of WBS items according to}} \times 100\%$	Ratio
			(Komite Nasional Kebijakan Governance, 2008)	
Financial Statements Fraud (Y)	Beneish M-Score	The Beneish M-Score is an analytical tool used to detect the likelihood of financial statement fraud, calculated based on eight specific financial ratios.	Entities that are identified as engaging in financial statement fraud are assigned a score of 1, while entities that do not show indications of fraud are assigned a score of 0.	Nominal
			(Tjandra & Triyani, 2023)	

Financial statement fraud is measured using the Beneish M-Score (Beneish, 1999), which combines eight financial ratios, namely the Days Sales Receivable Index (DSRI), Gross Margin Index (GMI), Asset Quality Index (AQI), Sales Growth Index (SGI), Depreciation Index (DEPI), Sales, General and Administrative Expenses Index (SGAI), Leverage Index (LVGI), and Total Accruals to Total Assets (TATA). Firms with an M-Score greater than -2.22 are classified as firms with a high probability of financial statement fraud and assigned a value of 1; otherwise, they are assigned a value of 0. The Beneish M-Score formula model is as follows:

$$\text{M-Score} = -4,84 + 0,920 (\text{DSRI}) + 0,528 (\text{GMI}) + 0,404 (\text{AQI}) + 0,892 (\text{SGI}) + 0,115 (\text{DEPI}) - 0,172 (\text{SGAI}) + 4,679 (\text{Accruals}) - 0,327 (\text{LEVI})$$

Data Analysis

The data were analyzed using EViews 10. Since the dependent variable is binary, this study applies binary logistic regression to examine the effect of the Fraud Pentagon dimensions and the Whistleblowing System on financial statement fraud. Before hypothesis testing, descriptive statistics were used to summarize the characteristics of the data. The adequacy of the regression model was subsequently evaluated using the Hosmer–Lemeshow goodness-of-fit test, McFadden's Pseudo R², and the classification matrix. Hypothesis testing

was conducted using the Wald test at a 5% significance level. The logistic regression model is specified as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + e \dots\dots\dots(i)$$

Description:

Y = Financial Statement Fraud

a = Constant

b = Regression coefficient of each variable

X₁ = Financial Stability

X₂ = Ineffective Monitoring

X₃ = Change in Auditor

X₄ = Change in Director

X₅ = Frequent Number of CEO's Picture

X₆ = Whistleblowing System

e = error term

4. Results and Discussion

Sample Result

Of the initial population of 55 SOE parent entities, only 25 remained and met the criteria after purposive sampling was conducted. Consequently, 100 panel data points were obtained over the 4-year observation period, specifically 2021–2024.

Table 2. The Result of Purposive Sampling.

No.	Description	Total
Criteria		
1.	Non-financial SOEs listed in the SOE portfolio for the period 2021 – 2024.	55
2.	SOEs that did not fully publish all required data for the 2021 – 2024 period.	(27)
3.	SOEs that do not report their financial statements in Rupiah (IDR).	(3)
Total number of SOEs included in the sample		25
Research year (2021 – 2024)		4
Total data used as sample		100

The Result of Analysis Statistical Descriptive

Table 3. Statistical Descriptive.

	Pressure	Opportunity	Arrogance	Whistleblowing System
Mean	0.070323	0.489095	3.860000	0.840000
Median	0.042293	0.428571	4.000000	0.850000
Maximum	1.029837	1.000000	8.000000	1.000000
Minimum	-0.291149	0.166667	1.000000	0.600000
Std. Dev.	0.169067	0.236438	1.287233	0.112815

Table 4. Statistical Descriptive (Frequent Tabel).

Variables	Dep. Value	Frequency	Percent
Financial Statements	0	64	64.00
Fraud	1	36	36.00
Rationalization	0	61	61.00
	1	39	39.00
Competence	0	32	32.00
	1	68	68.00

The Pressure variable, proxied by Financial Stability (ACHANGE), has a mean of 0.0703, indicating that companies experienced an average increase in total assets of 7.03% during the observation period. The values range from −0.2911 to 1.0298 with a standard deviation of 0.1691, suggesting considerable variation in asset growth among the sampled SOEs. Opportunity, measured by Ineffective Monitoring (BDOUT), records a mean of 0.4891, indicating that independent commissioners account for approximately 48.91% of the board composition on average. The variable ranges from 0.1667 to 1.0000 with a standard deviation of 0.2364, reflecting relatively moderate variation across companies. Meanwhile, Arrogance, proxied by the Frequent Number of CEO's Pictures (CEOPIC), has a mean of

3.8600, indicating that companies display approximately four CEO pictures in their annual reports on average, with values ranging from 1 to 8 and a standard deviation of 1.2872.

The Whistleblowing System (WBS) disclosure index has a mean of 0.8400, indicating that sampled companies disclosed approximately 84% of the National Committee on Governance whistleblowing indicators. The disclosure level ranges from 0.6000 to 1.0000 with a relatively low standard deviation of 0.1128, suggesting limited variation among firms. For the dummy variables, 39% of the observations experienced auditor changes (Rationalization), while 68% experienced director changes (Competence). Furthermore, based on the Beneish M-Score classification, 36% of the observations were identified as having indications of Financial Statement Fraud, whereas the remaining 64% showed no indications of financial statement fraud during the 2021–2024 observation period.

The Result of Goodness of Fit (Hosmer and Lemeshow Test)

Table 5. Result of Hosmer and Lemeshow Test.

H-L Statistic	8.2495	Prob. Chi-Sq(8)	0.4095
Andrews Statistic	13.4296	Prob. Chi-Sq(10)	0.2006

Based on the test results, the Hosmer-Lemeshow statistic was obtained at 8.2495 with a Chi-Square (8) probability of 0.4095. This probability value is greater than the significance level of 0.05 ($0.4095 > 0.05$), so H_0 is accepted and H_1 is rejected. Thus, there is no significant difference between the values predicted by the model and the actual observed values. This indicates that the logistic regression model used has a good goodness-of-fit and is suitable for testing the effects of the variables Fraud Pentagon and Whistleblowing System on financial statement fraud in state-owned enterprises (SOEs) for the 2021–2024 period.

The Result of Coefficient of Determination (Pseudo R Square) Test

Table 6. Coefficient of Determination (Pseudo R Square).

Model Evaluation Indicator	Value
McFadden R-squared	0.099510
S.D. dependent var	0.482418
Akaike info criterion	1.316793
Schwarz criterion	1.499155
Hannan-Quinn criter.	1.390598
Restr. Deviance	130.6836
LR statistic	13.00435
Prob (LR statistic)	0.042967

The logistic regression results show a McFadden R-squared value of 0.0995, indicating that Pressure (Financial Stability), Opportunity (Ineffective Monitoring), Rationalization (Change in Auditor), Competence (Change in Director), Arrogance (Frequent Number of CEO's Pictures), and the Whistleblowing System collectively explain 9.95% of the variation in Financial Statement Fraud, while the remaining 90.05% is attributable to other factors outside the research model. Although relatively low, this value does not indicate a poor model, as Pseudo R-squared values in logistic regression are generally smaller than those in linear regression and are common in accounting and fraud research, where financial statement fraud is influenced by multiple complex factors.

The Result of Classification Matrix Test

Table 7. Classification Matrix.

	Estimated Equation		
	Dep=0	Dep=1	Total
E(# of Dep=0)	43.74	20.26	64.00
E(# of Dep=1)	20.26	15.74	36.00
Total	64.00	36.00	100.00
Correct	43.74	15.74	59.49
% Correct	68.35	43.73	59.49
% Incorrect	31.65	56.27	40.51
Total Gain*	4.35	7.73	5.57
Percent Gain**	12.08	12.08	12.08

The classification matrix was used to evaluate the predictive accuracy of the logistic regression model in classifying Financial Statement Fraud. As presented in Table 4, the model achieved an overall classification accuracy of 59.49%, correctly classifying approximately 59 of the 100 observations. The model performed better in identifying non-fraud firms (68.35% accuracy) than fraud firms (43.73% accuracy). Although the overall predictive accuracy is moderate, these results indicate that the model provides better classification performance

than the baseline model and that the independent variables improve the prediction of Financial Statement Fraud. Nevertheless, the moderate accuracy also suggests that other factors outside the research model contribute to the occurrence of financial statement fraud.

The Result of Logistic Regression Analysis

Table 8. Logistic Regression.

Variable	Coefficient	Std. Error	z-Statistic	Prob.
X1	4.917406	2.121911	2.317443	0.0205
X2	2.450020	1.106512	2.214182	0.0268
X3	0.172823	0.468244	0.369088	0.7121
X4	0.442152	0.508723	0.869141	0.3848
X5	0.043197	0.191517	0.225551	0.8216
X6	-0.575097	2.260991	-0.254356	0.7992
C	-2.197694	2.225658	-0.987436	0.3234

Logistic regression analysis was conducted to examine the direction and effect of Pressure, Opportunity, Rationalization, Competence, Arrogance, and Whistleblowing System on Financial Statement Fraud. The regression results are presented in Table 4.1.7 and produce the following equation:

$$\text{Financial Statement Fraud} = -2.197694 + 4.917406X_1 + 2.450020X_2 + 0.172823X_3 + 0.442152X_4 + 0.043197X_5 - 0.575097X_6$$

The constant value of -2.197694 indicates the logit value of Financial Statement Fraud when all independent variables are assumed to be zero. The Pressure (ACHANGE) and Opportunity (BDOUT) variables have positive and statistically significant coefficients ($\beta = 4.917406$; $p = 0.0205$ and $\beta = 2.450020$; $p = 0.0268$, respectively), indicating that increases in these variables raise the likelihood of Financial Statement Fraud. Meanwhile, Rationalization (AUDCHANGE) ($\beta = 0.172823$; $p = 0.7121$), Competence (DCHANGE) ($\beta = 0.442152$; $p = 0.3848$), and Arrogance (CEOPIC) ($\beta = 0.043197$; $p = 0.8216$) show positive but statistically insignificant effects. In contrast, the Whistleblowing System variable has a negative coefficient ($\beta = -0.575097$; $p = 0.7992$), suggesting a tendency to reduce the likelihood of Financial Statement Fraud, although the effect is not statistically significant.

Hypothesis Testing

The partial test was conducted to examine the individual effect of each independent variable on Financial Statement Fraud by comparing the probability value (Prob.) with the 5% significance level ($\alpha = 0.05$). A hypothesis is accepted if $p < 0.05$ and rejected if $p > 0.05$. Based on Table 8, the results are as follows:

- H₁ (Pressure/ACHANGE): The Pressure variable has a positive and statistically significant effect on Financial Statement Fraud ($z = 2.317443$; $p = 0.0205 < 0.05$). Therefore, H₁ is accepted.
- H₂ (Opportunity/BDOUT): The Opportunity variable has a positive and statistically significant effect on Financial Statement Fraud ($z = 2.214182$; $p = 0.0268 < 0.05$). Therefore, H₂ is accepted.
- H₃ (Rationalization/AUDCHANGE): The Rationalization variable has no statistically significant effect on Financial Statement Fraud ($z = 0.369088$; $p = 0.7121 > 0.05$). Therefore, H₃ is rejected.
- H₄ (Competence/DCHANGE): The Competence variable has no statistically significant effect on Financial Statement Fraud ($z = 0.869141$; $p = 0.3848 > 0.05$). Therefore, H₄ is rejected.
- H₅ (Arrogance/CEOPIC): The Arrogance variable has no statistically significant effect on Financial Statement Fraud ($z = 0.225551$; $p = 0.8216 > 0.05$). Therefore, H₅ is rejected.
- H₆ (Whistleblowing System): The Whistleblowing System has a negative but statistically insignificant effect on Financial Statement Fraud ($z = -0.254356$; $p = 0.7992 > 0.05$). Therefore, H₆ is rejected.

Discussion

The Effect of Pressure on Financial Statement Fraud

Pressure significantly increases Financial Statement Fraud ($\beta = 4.9174$; $p = 0.0205$), supporting H₁. This finding supports Fraud Pentagon Theory, which identifies financial pressure as a major driver of financial statement fraud. When companies experience difficulty maintaining financial stability, management is more likely to manipulate financial statements to satisfy stakeholders and preserve corporate performance.

The finding is also consistent with the Theory of Planned Behavior (TPB), as financial pressure influences managerial intentions to engage in fraud. It also be explained by the

characteristics of State-Owned Enterprises (SOEs) during the 2021–2024 period. This period represented the post-COVID-19 economic recovery, during which many SOEs were required to improve their financial performance while simultaneously fulfilling their public service obligations. Under Law No. 19 of 2003 on State-Owned Enterprises, SOEs are expected not only to generate profits but also to contribute to the national economy and provide goods and services for the public interest. Consequently, SOEs operate as hybrid organizations, pursuing both commercial and public service objectives. This dual mandate creates more complex managerial pressures than those experienced by private-sector companies. On the one hand, management is expected to maintain profitability and financial stability; on the other hand, it must fulfill government assignments and public service responsibilities. These competing demands may encourage management to engage in aggressive financial reporting practices in order to preserve favorable perceptions of the company's performance.

Furthermore, changes in the total assets of SOEs may result from various strategic corporate policies, including restructuring initiatives, government capital injections, asset transfers, and business expansion. Such changes place additional pressure on management to demonstrate that these asset adjustments generate positive financial outcomes. When these expectations cannot be achieved through actual operational performance, the incentive to manipulate financial statements increases. Accordingly, the greater the pressure reflected in changes in a company's total assets, the greater the likelihood that management will engage in Financial Statement Fraud.

The results of this study are consistent with those of Septriani & Handayani (2018) and Aprilia (2017), who found that Financial Stability has a significant effect on Financial Statement Fraud. These findings are further supported by Nurbaiti & Putri (2023), Nurhakim & Harto (2023), Milania & Triyono (2022), Situngkir & Triyanto (2020), who also found that Pressure, as proxied by Financial Stability, has a positive effect on Financial Statement Fraud.

The Effect of Opportunity on Financial Statement Fraud

Opportunity positively affects Financial Statement Fraud ($\beta = 2.4500$; $p = 0.0268$), supporting H₂. This finding supports Fraud Pentagon Theory, which argues that weak monitoring creates opportunities for management to commit fraud. In this study, Opportunity is measured using the proportion of independent commissioners (BDOUT), where weaker monitoring increases management discretion over financial reporting.

The result is also consistent with TPB because ineffective monitoring increases perceived behavioral control by reducing the perceived risk of detection., which suggests that weak monitoring mechanisms increase perceived behavioral control, namely, an individual's belief that a particular behavior can be carried out with relative ease and a low likelihood of detection. When internal monitoring is ineffective, management is more likely to perceive that financial statement manipulation can be undertaken with minimal risk of exposure. This perception ultimately strengthens both the intention and the opportunity to engage in Financial Statement Fraud.

Within Indonesian State-Owned Enterprises (SOEs) during the 2021–2024 period, effective oversight became increasingly important because SOEs manage substantial state assets and are accountable to both the government and the public. Although SOEs generally implement Good Corporate Governance (GCG) principles through the appointment of independent commissioners, the effectiveness of corporate oversight depends not only on the number of independent commissioners but also on the quality of their supervisory role. If oversight of financial reporting processes and internal control systems is ineffective, management has greater opportunities to manipulate financial statements. Therefore, the presence of independent commissioners must be accompanied by genuine independence, adequate competence, and effective supervisory performance to minimize the occurrence of Financial Statement Fraud.

The results of this study are consistent with the findings of Ghaisani & Supatmi (2023), whom reported that Opportunity, as proxied by Ineffective Monitoring, has a positive effect on Financial Statement Fraud. These studies suggest that the less effective a company's monitoring mechanisms are, the greater the opportunity for management to manipulate financial statements. Weak oversight provides management with greater discretion to engage in opportunistic behavior while reducing the likelihood of detection. In the present study, Ineffective Monitoring is measured using the proportion of independent commissioners (BDOUT), indicating that lower monitoring effectiveness, as reflected by a lower proportion of independent commissioners, increases the risk of Financial Statement Fraud.

These findings are further supported by Trisna (2022), who argued that independent commissioners play a crucial role in reducing fraud risk by performing effective supervisory functions. Similarly, Wangi et al. (2024) concluded that weak monitoring mechanisms provide greater opportunities for individuals to commit fraud because the perceived risk of detection is substantially reduced.

On the other hand, the results differ from those reported by Utami et al. (2022), who found that Ineffective Monitoring does not significantly affect Financial Statement Fraud. This discrepancy may be attributable to differences in sample characteristics, research periods, or the effectiveness of corporate governance implementation across the respective study objects. Moreover, the formal presence of independent commissioners does not necessarily guarantee effective oversight if they are unable to perform their supervisory responsibilities independently and effectively in monitoring the company's financial reporting process.

The Effect of Rationalization on Financial Statement Fraud

Rationalization, proxied by Change in Auditor, does not significantly affect Financial Statement Fraud ($\beta = 0.1728$; $p = 0.7121$); therefore, H₃ is rejected. Although Fraud Pentagon Theory suggests that auditor changes may help management rationalize fraudulent behavior by reducing audit scrutiny, the findings indicate that auditor rotation in Indonesian SOEs does not significantly influence financial statement fraud. From the TPB perspective, newly appointed auditors may temporarily reduce perceived detection risk. However, this assumption is not supported because SOEs operate under relatively strong governance structures and standardized auditing procedures.

These findings can also be explained by the characteristics of Indonesian SOEs, which generally operate under relatively stringent corporate governance structures and oversight mechanisms. Auditor changes occurring during the observation period were not necessarily intended to conceal financial statement manipulation. Instead, such changes may have resulted from various legitimate considerations, including evaluations of audit quality, changes in corporate policies, organizational restructuring, or the need to appoint audit firms with greater expertise suited to the company's operational complexity. Furthermore, audit effectiveness within SOEs depends not only on the duration of the auditor-client relationship but also on compliance with auditing standards, the effectiveness of internal control systems, the role of the audit committee, and oversight by multiple regulatory and governance bodies. Consequently, auditor rotation does not automatically increase the risk of financial statement fraud.

The findings of this study are inconsistent with those of Hastuti et al. (2023), Maryadi et al. (2020), and Sasongko & Wijyantika (2019), all of whom reported that Change in Auditor has a positive effect on Financial Statement Fraud. These studies argue that management may exploit auditor changes to reduce the likelihood of fraud detection because newly appointed auditors require time to gain sufficient knowledge of the company's operations, internal controls, and business risks.

In contrast, the findings of this study are consistent with those of Wangi et al. (2024), who found that auditor changes do not have a significant effect on Financial Statement Fraud. This may be because fraudulent practices are generally rooted in weak internal control systems and unethical practices that already exist within the company. In addition, the assumption that newly appointed auditors require a long period to understand the company's operations may not always be valid, as audit procedures are generally conducted in accordance with the same professional auditing standards. Therefore, a change in auditors does not necessarily lead to a significant difference in the effectiveness of fraud detection. Therefore, the differing findings may be attributed to the unique characteristics of Indonesian SOEs, which generally maintain stronger governance structures and oversight mechanisms than the firms examined in previous studies. As a result, auditor changes do not directly increase the likelihood of financial statement fraud.

The Effect of Competence on Financial Statement Fraud

Competence, proxied by Change in Director, has no significant effect on Financial Statement Fraud ($\beta = 0.4422$; $p = 0.3848$), leading to the rejection of H₄. Although Fraud Pentagon Theory argues that individuals with greater authority and capability are more likely to commit fraud, director turnover does not appear to represent such capability within Indonesian SOEs.

The findings can be explained by the governance characteristics of Indonesian SOEs, where director appointments and dismissals are subject to strict regulatory frameworks under Government Regulation No. 45 of 2005 and Minister of State-Owned Enterprises Regulation No. PER-3/MBU/03/2023. These regulations establish clear provisions regarding directors' tenure, appointment procedures, dismissal mechanisms, and competency standards. Consequently, changes in the board of directors represent an integral component of corporate governance aimed at improving organizational effectiveness rather than facilitating financial statement fraud. Furthermore, directors appointed to SOEs generally undergo rigorous selection processes based on competence, integrity, professional experience, and managerial capability. Therefore, director turnover does not inherently increase the opportunity for financial statement manipulation.

Another factor that may explain the insignificant result is the timing of director turnover itself. In many Indonesian SOEs, changes in the board of directors are commonly decided during the Annual General Meeting of Shareholders (AGMS), which is generally held after the publication of the company's annual financial statements, typically after the end of March. Consequently, many director changes occur only after the financial statements have been finalized, audited, and publicly released. Since the Beneish M-Score in this study is calculated using the published annual financial statements, director turnover that occurs after the reporting process has been completed is unlikely to influence the occurrence of financial statement fraud in the same reporting period. Therefore, the DCHANGE variable may not accurately capture the competence element associated with financial statement fraud during the year under observation.

The findings of this study are inconsistent with those of Hastuti et al. (2023) and Ghaisani & Supatmi (2023), who reported that Change in Director has a positive effect on Financial Statement Fraud. These studies argue that transitions in leadership may create opportunities for management to manipulate financial statements or conceal financial problems inherited from previous management. Conversely, the present findings are consistent with Utami et al. (2022), who concluded that changes in directors do not have a significant effect on Financial Statement Fraud. This suggests that changes in the board of directors are not necessarily intended to conceal fraudulent activities committed by previous management. Instead, such changes may represent part of the company's strategy to improve organizational performance by appointing new directors who are considered more competent and capable of carrying out managerial responsibilities effectively. Consequently, companies may simply adjust the composition of the board of directors to fill vacant positions, including those resulting from resignation, retirement, or the death of previous directors, rather than as an indication of fraudulent intent.

The Effect of Arrogance on Financial Statement Fraud

Arrogance, measured by the Frequent Number of CEO's Pictures, does not significantly affect Financial Statement Fraud ($\beta = 0.0432$; $p = 0.8216$), resulting in the rejection of H_5 . Although Fraud Pentagon Theory associates excessive executive confidence with fraudulent behavior, CEO pictures in annual reports appear to function primarily as corporate communication rather than indicators of executive arrogance.

This finding may be explained by the characteristics of annual report preparation in Indonesian SOEs. The frequency of CEO pictures is not determined solely by the CEO's personal preference but is also influenced by the company's need to communicate information to stakeholders and document corporate activities throughout the reporting period. In this study, the frequency was calculated based on every appearance of the CEO's picture across all sections of the annual report. Consequently, a higher number of CEO pictures may simply reflect the CEO's involvement in various corporate activities, such as presenting reports to shareholders, signing cooperation agreements, conducting official visits, participating in corporate social responsibility (CSR) programs, and attending other strategic events, rather than indicating an arrogant personality. Therefore, the Frequent Number of CEO's Pictures (CEOPIC) does not appear to be an appropriate indicator for explaining Financial Statement Fraud in Indonesian SOEs during the 2021–2024 period.

This phenomenon can also be understood from the dual nature of CEO visibility. On the one hand, a higher frequency of CEO pictures may reflect greater self-confidence and leadership dominance, which theoretically could encourage fraudulent behavior because CEOs may perceive themselves as having sufficient authority and influence to override organizational controls. On the other hand, frequent public exposure may also increase the CEO's sense of accountability and public scrutiny, thereby discouraging unethical behavior. In this sense, frequent CEO appearances in annual reports may generate a form of social monitoring that reduces the intention to commit fraud, particularly within Indonesian SOEs, where governance mechanisms, external oversight, and regulatory requirements are relatively stringent. Furthermore, CEO pictures in annual reports are often intended to communicate corporate leadership, strategic achievements, and organizational performance to stakeholders rather than to demonstrate executive superiority or arrogance. As a result, the presence of more CEO pictures should not automatically be interpreted as evidence of executive arrogance or dominance that leads to Financial Statement Fraud.

The findings of this study are inconsistent with those of Triastuti et al. (2020) and Maryadi et al. (2020), who reported that the Frequent Number of CEO's Pictures has a positive effect on Financial Statement Fraud. These studies argue that CEOs who appear more frequently in annual reports tend to exhibit higher levels of self-promotion and leadership dominance, which may increase the risk of financial statement fraud. In contrast, the results of this study are consistent with those of Ghaisani & Supatmi (2023) and Ulfah et

al. (2017), who found that the Frequent Number of CEO's Pictures does not significantly influence Financial Statement Fraud.

The Effect of Whistleblowing System on Financial Statement Fraud

The Whistleblowing System has a negative but statistically insignificant effect on Financial Statement Fraud ($\beta = -0.5751$; $p = 0.7992$); therefore, H_6 is rejected. Although the direction of the coefficient is consistent with Fraud Pentagon Theory and TPB, WBS disclosure alone does not significantly explain variations in fraud among Indonesian SOEs.

The descriptive statistics provide further insight into these findings. The WBS disclosure index recorded an average score of 0.8400, with values ranging from 0.6000 to 1.0000, while the standard deviation was only 0.1128. These results indicate that, on average, Indonesian SOEs disclosed approximately 84% of the whistleblowing indicators recommended by the National Committee on Governance (Komite Nasional Kebijakan Governance, 2008), with relatively little variation among companies. Furthermore, annual observations show a gradual increase in disclosure, from 0.824 in 2021 to 0.852 in 2024, while the level of dispersion remained relatively stable throughout the observation period (standard deviation between 0.097 and 0.123). It is also noteworthy that 44% of the sampled companies (11 out of 25 SOEs) reported exactly the same WBS disclosure score across all four years, indicating that many firms had already established relatively mature whistleblowing practices before the implementation of Regulation of the Minister of SOEs No. PER-2/MBU/03/2023.

Table 9. Whistleblowing System Before and After Regulation.

Aspect	2021 – 2022 (Before Regulation)	2023 – 2024 (After Regulation)
Average	0.832	0.848
Std. dev.	0.1058	0.1199
Min.	0.60	0.60
Max.	1.00	1.00
Companies that reported exactly the same WBS disclosure score across all four years		11 out of 25 (44%)

These findings indicate that the limited variation in WBS disclosure was primarily attributable to the characteristics of the selected sample rather than the 2023 regulation. Because purposive sampling required complete and consistent governance disclosures, the sample mainly consisted of large SOEs with relatively mature governance systems. Consequently, the regulation appears to have standardized existing practices rather than producing substantial changes, leaving limited variation for explaining differences in financial statement fraud.

However, the insignificant result should not be interpreted as evidence that the whistleblowing system is ineffective. A high disclosure score only reflects the existence of the required WBS components and does not necessarily indicate effective investigation, adequate whistleblower protection, or an organizational culture that encourages reporting without retaliation (Vousinas, 2019). This interpretation is supported by the Survey Fraud Indonesia (SFI) 2025, which reported WBS effectiveness at only 14%, suggesting that the gap between formal disclosure and actual implementation remains common across Indonesian organizations.

Another explanation is that WBS may encourage companies to resolve fraud internally before it develops into material financial reporting issues. As argued by Nur Cahyo & Sulhani (2017), organizations often prefer to investigate allegations, impose sanctions, strengthen internal controls, and reinforce ethical standards internally to avoid reputational damage. Consequently, while WBS may improve fraud prevention and corrective actions, its impact may not be reflected in Beneish M-Score results, which detect earnings manipulation rather than the overall incidence of fraud.

5. Conclusions

This study examined the effects of the Fraud Pentagon dimensions, namely pressure (financial stability), opportunity (ineffective monitoring), rationalization (change in auditor), competence (change in director), arrogance (frequent number of CEO's pictures), and the Whistleblowing System on Financial Statement Fraud, proxied by the Beneish M-Score, using logistic regression on 100 firm-year observations of Indonesian State-Owned Enterprises (SOEs) during 2021–2024. The findings indicate that only pressure and opportunity have a positive and statistically significant effect on Financial Statement Fraud, whereas rationalization, competence, arrogance, and the Whistleblowing System do not have statistically significant effects. These results suggest that organizational conditions, particularly financial pressure and weak monitoring mechanisms, are more influential in

explaining financial statement fraud than managerial characteristics or the formal implementation of governance mechanisms.

The findings support the research objective of identifying the determinants of Financial Statement Fraud within the Fraud Pentagon framework and provide only partial support for the proposed hypotheses. Specifically, the pressure and opportunity dimensions of the Fraud Pentagon remain relevant in explaining financial statement fraud among Indonesian SOEs, while the rationalization, competence, and arrogance dimensions are not supported in this context. Similarly, although the Whistleblowing System exhibits the expected negative relationship with Financial Statement Fraud, its effect is not statistically significant, indicating that the formal disclosure of whistleblowing practices alone is insufficient to reduce financial statement fraud. These findings contribute to the literature by providing evidence that, within Indonesian SOEs, fraud risk is more strongly associated with financial conditions and monitoring effectiveness than with changes in auditors, directors, CEO visibility, or the existence of whistleblowing mechanisms.

Practically, the findings highlight the importance of strengthening internal monitoring mechanisms and maintaining financial stability to minimize the risk of Financial Statement Fraud in Indonesian SOEs. Improving the effectiveness of independent commissioners, reinforcing internal control systems, and enhancing governance quality may provide more meaningful fraud prevention than relying solely on formal governance disclosures, including whistleblowing systems. The study also suggests that organizations should focus on improving the quality and effectiveness of governance implementation rather than merely fulfilling disclosure requirements.

This study has several limitations. First, the analysis is limited to 25 non-financial parent SOEs over the 2021–2024 period; therefore, the findings cannot be generalized beyond this context. Second, the logistic regression model explains only a modest proportion of the variation in Financial Statement Fraud (McFadden $R^2 = 0.0995$) and demonstrates moderate predictive performance, indicating that other determinants remain unexplained. Future studies are therefore encouraged to include a broader range of companies, extend the observation period, and incorporate additional variables, such as corporate governance characteristics, audit quality, ownership structure, or external organizational factors, to provide a more comprehensive understanding of the determinants of Financial Statement Fraud.

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