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FINANCIAL STATEMENT FRAUD DETECTION WITH THE FRAUD PENTAGON APPROACH IN STATE-OWNED ENTERPRISES

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ABSTRACT

This study aims to analyze the influence of the fraud Pentagon elements on detecting financial statement fraud in BUMN listed on the Indonesia Stock Exchange (IDX) for 2020-2022. The study population was all state-owned enterprises BUMN listed on the Indonesia Stock Exchange. The sample was selected using a purposive sampling method, resulting in 18 companies. Data analysis used multiple regression analysis. The results showed that financial stability and personal financial needs were proven to have no significant effect on financial statement fraud. Financial targets, changes in director and auditor, and the number of CEO photos in the annual report showed a significant positive effect on financial statement fraud. Meanwhile, ineffective monitoring and dualism positions showed a significant negative effect. These findings indicate that several elements in the fraud pentagon framework significantly affect financial statement fraud in BUMN in Indonesia, with the model explaining 62.6% of the variance in fraud detection.

ABSTRAK

Penelitian ini bertujuan menganalisis pengaruh elemen fraud pentagon terhadap pendeteksian kecurangan laporan keuangan pada BUMN yang terdaftar di Bursa Efek Indonesia (BEI) periode 2020-2022. Populasi penelitian adalah seluruh badan usaha milik negara BUMN yang terdaftar pada Bursa Efek Indonesia. Sampel dipilih menggunakan purposive sampling method sehingga sejumlah 18 perusahaan. Analisis data menggunakan analisis regresi berganda. Hasil penelitian menunjukkan financial stability dan personal financial needs terbukti tidak berpengaruh signifikan terhadap kecurangan laporan keuangan. Financial targets, change in director, change in auditor, dan jumlah foto CEO dalam laporan tahunan menunjukkan pengaruh positif signifikan terhadap kecurangan laporan keuangan. Sementara itu, ineffective monitoring dan dualism position menunjukkan pengaruh negatif signifikan. Temuan ini mengindikasikan bahwa beberapa elemen dalam kerangka fraud pentagon secara signifikan mempengaruhi kecurangan laporan keuangan pada BUMN di Indonesia, dengan model menjelaskan 62,6% varians dalam pendeteksian fraud.

INTRODUCTION

Financial Statement Fraud represents a critical challenge in corporate governance, with significant implications for stakeholders and market integrity. Financial statements serve as crucial instruments that reflect a company's financial health, performance, and business success. Their role in corporate accountability creates a potential motivation for management to present attractive yet potentially misleading financial information. Based on the latest publication from ACFE entitled 'Occupational Fraud 2022: A Report to the Nations', an interesting phenomenon was revealed where despite only an increase of 9%, Financial Statement Fraud is the most significant cause of financial losses with an average of USD 593,000 per case. This condition underscores the magnitude of the economic impact of financial statement manipulation compared to other types of occupational fraud. ACFE research further reveals that although owners or executives account for only 23% of overall fraud cases, the resulting losses are significantly higher than fraud committed by managers or employees, reaching USD 337,000 per case. Detecting fraud by high-ranking perpetrators is particularly challenging as these individuals often can circumvent control mechanisms designed to detect fraudulent activities.

Indonesia's position as the fourth-ranked country for fraud cases in Asia-Pacific, with 23 reported cases in 2022, underscores the urgency of addressing this issue nationally. This statistic highlights the need for more rigorous fraud detection frameworks tailored to the Indonesian business environment, especially for entities with significant public interest. State-owned enterprises in Indonesia have demonstrated alarming patterns of financial reporting fraud, exemplified by cases at PT Garuda Indonesia (losses of 8,8 trillion rupiah), PT Krakatau Steel (estimated losses of 1,17-1,38 trillion), and PT Waskita Karya (concealment of vendor bills since 2016). These high-profile cases reflect a significant scientific problem. Despite existing control mechanisms, detection systems appear inadequate for identifying sophisticated fraud schemes in state-owned enterprises.

The Pentagon fraud model enhances our understanding of financial deception by expanding conventional frameworks to encompass a five-dimensional analysis: external pressures, control weaknesses, cognitive justifications, professional abilities, and executive hubris. This systematic analysis of these interconnected elements and their impact on accounting manipulation within Indonesia's public sector corporations

The detection of financial statement fraud using the Pentagon analysis approach is still rarely done due to fraud. The Pentagon analysis is a fraud detection model focusing on fraud committed by company officials such as CEOs or Directors. There are also inconsistencies in the results of previous studies. Based on the explanation of the phenomena that occurred and the discovery of several gaps in the results of earlier studies that still require re-testing, the researcher made this research as part of the research gap so that this research becomes very necessary to be carried out to satisfy the thirst and develop research on the detection of financial statement fraud with the pentagon analysis approach within the scope of BUMN. This study aims to detect financial statement fraud in state-owned companies that have been listed on the IDX for the 2020-2022 period using fraud pentagon analysis by Crowe Horwath (2010).

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Agency Theory

Agency Theory provides the fundamental theoretical lens for understanding the motivations behind Financial Statement Fraud. In a theoretical perspective developed by Jensen and Meckling in 1976, agency relations are described as a contractual bond in which the owner of an interest (principal) recruits another party (agent) to carry out various actions on behalf of their interests, which inherently involves the delegation of decision-making authority. This relationship construction creates the foundation for understanding the potential conflicts of interest at the root of various dysfunctional behaviors in business organizations. This relationship inherently creates information asymmetry and potential conflicts of interest that can lead to fraudulent reporting. As Irianto & Novianti (2018) argue, these conflicts become particularly pronounced in publicly-listed companies where management faces pressure to present favorable financial performance to attract investors.

Pressure Dimension

Empirical studies examining the pressure dimension of the fraud pentagon have yielded varying results across different contexts. Financial stability has been found to significantly influence fraudulent reporting in studies by Apriliana & Agustina (2017), Setiawan (2022), Agustina & Pratomo (2019), Fitriyah & Novita (2021), and Cahyanti & Wahidahwati (2020). However, Rusmana & Tanjung (2020) found contradictory evidence, suggesting contextual factors may moderate this relationship. Financial targets, measured typically through return on assets (ROA), have been consistently linked to fraud in studies by Bayutama & Sulistiyowati (2023), Mardeliani et al. (2022), and Nurchoirunanisa et al. (2020), reinforcing the theoretical proposition that performance pressure can induce fraudulent behavior. Personal financial needs, often measured through insider ownership, have shown mixed effects, with Izzatunnisa (2022) finding significant positive relationships, while Boermawan & Arfianti (2022) found no significant effects.

According to Cahyanti & Wahidahwati (2020), an unstable or threatened company situation can cause management to be depressed because it has poor performance and is unable to maximize its assets, so this is not in accordance with the expectations of shareholders. This problem can encourage management to manipulate or use other forms of financial statement fraud so that the company's financial condition is always stable. Based on this explanation, the first hypothesis can be formulated, namely that the higher the ratio of changes in total assets of a company, the higher the level of risk of fraud in financial statements. This is because the pressure of the company's financial performance, which is required to always be in a stable state, will stimulate the management to commit financial statement fraud so that the financial performance of the company they lead is always in an optimal state.

Financial target in the agency context explains that shareholders and managers have different interests. Shareholders want the financial targets that have been determined to be achieved by managers. On the other hand, managers want bonuses for meeting certain financial goals. Conflicts of interest like this can lead to potential financial statement fraud. This is in line with the results of research conducted by Bahar & Setiawan (2022); Bayutama & Sulistiyowati (2023); Cahyanti & Wahidahwati (20200; Mardeliani et al. (2022); Nabila (2020); Himawan & Wijanarti (2020), Nurchoirunanisa et al. (2020). According to Mardeliani et al., (2022) financial targets can become a stimulus for management to commit fraudulent financial statements because it will cause a conflict of interest. Suppose the management is unable to meet these targets. In that case, the management will indicate fraudulent financial statements in order to continue to protect their position and get a large bonus for their performance.

Agency theory shows a conflict of interest between shareholders and managers. Managers as agents will try to fulfill personal financial needs by increasing the number of shares owned to influence management policies and decisions, even though this is detrimental to external shareholders as the principal. In addition, based on agency theory, if the roles of shareholders (principal) and managers (agent) are held by one person in one company, it can lead to financial statement fraud because the principal and agent have different interests. This is in line with the results of research by Izzatunnisa (2022), which states that personal financial need has a significant positive effect on the occurrence of financial statement fraud. According to Izzatunnisa (2022), the existence of share ownership owned by insiders is believed to affect the financial condition of related companies. This is supported by the emergence of a feeling of having things and authority over the company because of the number of shares it owns.

H_1: Pressure proxied by financial stability positively affects financial statement fraud.

H_2: Pressure proxied by financial targets positively affects financial statement fraud.

H_3: Pressure proxied by personal financial needs positively affects financial statement fraud.

Opportunity Dimension

The opportunity dimension, often proxied by ineffective monitoring, has shown mixed effects across studies. Cahyanti & Wahidahwati (2020) demonstrated that the presence of independent commissioners significantly reduces fraud risk, while Nurchoirunanisa et al. (2020) found no significant relationship. In evaluating the effectiveness of corporate supervision, a commonly applied quantitative index is a proportional comparison between independent commissioners and the total number of members of the board of commissioners. The applicable regulatory framework has established a minimum threshold for this ratio as one of the compliance parameters of corporate governance. This decree aims to ensure an adequate check and balance mechanism in the company's strategic decision-making structure, especially for entities with significant public interest. This inconsistency suggests that formal governance structures may be necessary but insufficient for fraud prevention without considering qualitative aspects of monitoring effectiveness.

H_4: Opportunity proxied by ineffective monitoring has a negative effect on financial statement fraud.

Rationalization Dimension

In examining rationalization, change in auditor has emerged as a significant predictor of fraud in studies by Pambudi et al. (2023) and Chang & Budiman (2023), supporting the theoretical argument that companies may change auditors to eliminate fraud trails. Nabila (2020) found frequent auditor changes correlate with efforts to conceal financial irregularities from public security. The rationalization dimension reflects how perpetrators justify fraudulent actions to themselves, with auditor changes potentially signaling attempts to avoid detection of existing irregularities. Someone who has committed fraud will look for a reason to say that what he is doing is the right action or not deviating. Fraud perpetrators use this justification to be free of punishment and other risks. Previous researchers have successfully studied indicators that can be used to examine the effect of rationalization on the detection of financial statement fraud. According to Azarine (2023), Cahyanti & Wahidahwati (2020), Nurchoirunanisa et al. (2020), and Rusmana & Tanjung (2020), rationalization can be projected with the change in auditor indicator. This statement is supported by the results of research conducted by Pambudi et al. (2023), Chang & Budiman (2023), Manurung & Hardika (2015), and Nabila (2020). According to Nabila (2020), companies tend to change their independent auditors when companies want to hide fraud or irregularities from the public. Companies with this negative desire will seek the truth using their own means without regard to the public when the information presented by the company is not genuine or reliable. Changing external auditors in a company is a weakness of the audit because a new auditor is still new to the company. The company will utilize this to commit financial statement fraud.

H_5: Rationalization, proxied by the change in auditor has a positive effect on financial statement fraud

Competence Dimension

The competence dimension, typically measured through change in director, has been positively associated with fraud in research by Nurchoirunanisa et al. (2020) and Mardeliani et al. (2022). However, Rusmana & Tanjung (2020) found no significant relationship. According to Mardeliani et al. (2022), changes in directors can create stress periods that may trigger fraudulent behavior as new directors attempt to demonstrate superior performance. This dimension acknowledges that successful fraud requires individuals with specific capabilities to exploit control weaknesses. Change in director is an event of transfer of power and authority from the old board of directors to the new board of directors. Managers, as agents contracted by shareholders (principals) to work in the interests of shareholders, will do their best to improve their performance. The change of directors may be related to the company's efforts to eliminate evidence or cover up fraud committed by the previous directors. This is supported by the results of research conducted by Azarine (2023); Pambudi et al. (2023); Chang & Budiman (2023); and Mardeliani et al. (2022). Nurchoirunanisa et al. (2020) state that the change of directors is held to cover up the fraud committed previously because usually the replacing directors will work less optimally and not know the fraud that occurred. According to Bawakes et al. (2018) in Mardeliani et al., (2022) the change of the principal director is able to hinder the company's performance, causing a stress period because the new director needs to adapt to the environment and corporate culture. The existence of a stress period encourages the managing director to take various ways so that his performance is considered better than the previous director to protect his position and get a bonus for his performance.

H_6: Competence proxied by the change in director has a positive effect on the occurrence of financial statement fraud

Arrogance Dimension

The arrogance dimension has been operationalized in various ways across the literature. The number of CEO pictures in annual reports reflecting narcissistic tendencies has been linked to fraud by Apriliana & Agustina (2017) and Nurchoirunanisa et al. (2020). Dualism position, another indicator of arrogance, has shown inconsistent effects, with Mardeliani et al. (2022) finding a positive relationship with fraud while Pambudi et al. (2023) found a negative relationship, suggesting the need for a more nuanced understanding of how power concentration affects fraudulent behavior. Horwarth (2012) defines arrogance as a superior attitude, believing in greater ability than others, and feeling immune to internal controls, which can enable fraudulent behavior.

Agency Theory by Jensen and Meckling (1976) explains the difference in interests between the agent and the principal, which triggers a conflict of interest. In addition, the dualism position increases the possibility of financial statement fraud because some gaps or opportunities are deliberately utilized by management as agents for personal gain without the principal's knowledge. Dualist position can make a managing director overpowered so that he feels immune to the risks and sanctions that could ensnare him if he commits fraud. The principal director with a dual position will believe that his dualist position will smooth his steps to commit fraudulent financial statements. This statement is supported by the results of research conducted by Bayutama & Sulistiyowati (2023); Izzatunnisa (2022); Mardeliani et al. (2022) and Nabila (2020). According to Nabila (2020), concurrent positions carried out by the managing director will be utilized to fill the gap between managers and companies in fraud. Mardeliani et al. (2022) state that the dominance of power will encourage the managing director to prioritize his personal interests and can lead to ego. The results of research conducted by Izzatunnisa (2022) state that CEO duality affects the potential for financial fraud. According to Izzatunnisa (2022), if a CEO in a company holds two positions at once, it will lead to overlap and dominance of his power, this will certainly trigger the emergence of bad things, such as the desire to fulfill his own personal interests. Supervisory independence in the company will be worse with the phenomenon of CEO duality in a company.

Agency theory helps us understand that the appearance of the CEO's photo in the company's annual report affects the shareholders' decision to invest. Seeing the CEO's photo in the company's annual report will affect the level of shareholder confidence in a company. This is because a company led by a CEO with a good track record will certainly affect the expectations of the company's performance success. This indicates a conflict of interest between the agent, who wants a bonus for successfully convincing shareholders to invest, and the principal, who wants a high return on the investment made in a company that is considered to be led by a reputable CEO. Arrogance is related to the level of narcissism that CEOs have to be recognized by society. According to Sigmund Freud (1909), in his research on psychoanalysis, translated by Bertens (2016), narcissism is a feeling of self-love accompanied by a tendency to selfishness and self-admiration to pay great attention to his skills or beauty. So, the frequency of the appearance of CEO photos in the company's annual report always shows that the CEO has a high attitude of arrogance and narcissism. Nurchoirunanisa et al. (2020) dan Randi & Faradiza (2022) state that the tendency of CEOs to display images in the company's financial statements is to want to be recognized by showing a good image, which can be said to be an arrogant attitude.

H_7: Arrogance proxied by dualism position positively affects financial statement fraud.

H_8: Arrogance proxied by the number of CEO's pictures displayed on the company's annual report has a positive effect on financial statement fraud.

State-Owned Enterprises Context

Studies focused specifically on state-owned enterprises reveal unique considerations in fraud detection. Nurchoirunanisa et al. (2020) found that political connections significantly influenced fraud likelihood in state-owned enterprises. Azarine (2023) highlighted how government ownership might create distinct pressure patterns compared to privately owned companies. These findings suggest that fraud detection models may need contextual adaptation when applied to state-owned enterprises due to their unique governance structures and stakeholder relationships. In synthesizing the extensive body of literature, it becomes evident that while the fraud pentagon framework offers a comprehensive theoretical foundation for understanding Financial Statement Fraud, its empirical application yields varying results across different contexts and measurement approaches. This inconsistency indicates the need for more context-specific investigations, particularly in state-owned enterprises where governance structures and incentive systems may differ from private-sector companies.

RESEARCH METHOD

This study examines connections between fraud pentagon framework components and manipulated financial disclosures. Financial and annual report data were collected from the Indonesia Stock Exchange (IDX) official website (www.idx.com) and company websites. All financial reports used in this study are audited reports to ensure data reliability. The population is 24 enterprises. The sampling method used non-probabilistic sample determination with a purposive sampling technique and obtain 18 samples. Sample selection was carried out by considering pre-determined eligibility criteria to ensure relevance and suitability with the research objectives: (1) Indonesian state enterprises that were publicly traded on the IDX from 2020 to 2022; (2) Enterprises that published complete and audited financial and annual reports during the period; (3) Enterprises that published financial reports using Indonesian Rupiah (Rp) as the reporting currency; (4) Enterprises that remained listed throughout the observation period.

The financial statement manipulation variables in this study are quantified through Dechow et al.'s (2011) F-Score methodology, which combines two main components: accrual measures and financial performance pattern assessments. In the pressure construct, three different indicators are operationalized: financial stability (X_1), calculated through year-on-year percentage modifications in total assets; financial target (X_2), measured by ROA; and Internal Ownership Concentration (X_3), measured as internal stakeholders' proportional equity ownership. The opportunity variable is measured through Governance Effectiveness Deficit (X_4), quantified as the proportion of independent commissioners to the total membership of the governance body. The rationalization dimension is represented through Auditor Transition (X_5), which uses a dummy variable, which is 1 if a transition occurs and 0 if no transition occurs. Similarly, the competence dimension is measured through Leadership Transition (X_6), which is measured using a dummy variable to indicate changes in director positions. The arrogance dimension includes two different measures: Executive Role Dualism (X_7), which uses a dummy variable, which is 1 if there is dualism and 0 if there is no dualism and Frequency of Visual Self-Representation (X_8), which is seen from the number of CEO photos in the annual report.

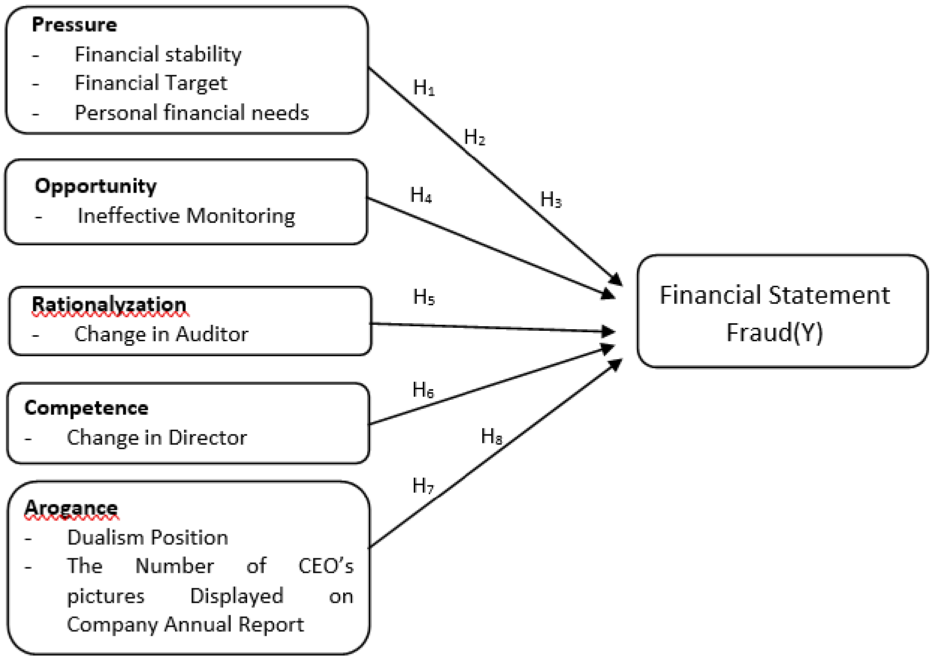

Figure 1. Framework

The analytical framework of this research leverages multivariate regression modeling. The central analytical mechanism employs a mathematical formulation structured in Formula (1). Within this formulation, Y denotes the dependent variable (financial statement manipulation quantified via F-Score); α represents the intercept parameter; β_1 through β_8 constitute parameter estimates quantifying directional relationships; X_1 through X_8 corresponds to explanatory variables operationalizing pentagon fraud dimensions; and ε represents the stochastic error component capturing unmodeled influences. This model allows for simultaneous analysis of multiple fraud pentagon elements while controlling for their interrelated effects. The final stage of analysis involves hypothesis testing through three complementary approaches. The coefficient of determination (Adjusted R^2) test determines the proportion of variance in Financial Statement Fraud explained by the model. The simultaneous significance test (F-test) assesses whether the independent variables collectively affect Financial Statement Fraud significantly—the partial test (t-test).

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \varepsilon \quad (1)$$

Table 2. Descriptive Statistical Analysis Results

Variable	Min	Max	Mean	Std. Deviation
Financial Stability (X1)	-0,24	0,24	0,044	0,092
Financial Target (X2)	-27,93	12,25	1,011	5,063
Personal Financial Needs (X3)	0,00	0,01	0,0004	0,002
Ineffective Monitoring (X4)	0,25	0,70	0,479	0,129
The Number of CEO's Pictures Displayed on Company Annual Report (X8)	2,00	19,00	6,463	4,286
F-Score (Y)	-3,24	1,28	-0,256	0,733

RESULT AND DISCUSSIONS

Descriptive Statistical Test Results

Table 2 displays the results of the descriptive statistical analysis for this study. The analysis of 54 observational units using descriptive statistics reveals significant insights into data characteristics across the examined sample. Examination of asset stability indicators (X1) demonstrates a mean coefficient of 0.0438 (SD = 0,092), suggesting SOEs typically achieved modest 4,38% asset management efficiency during the study period. Notably, PT Indofarma Tbk exhibited extreme positions in this metric during different timeframes—recording the maximum observed coefficient (0.24) in 2020, primarily attributable to a substantial expansion in both current holdings (IDR 305,63 billion increase) and non-current portfolio components (IDR 23,66 billion growth). Conversely, this same corporation registered the minimum coefficient (-0,24) in 2022, reflecting a 24% contraction in total assets principally driven by accounts receivable reduction.

Statistical examination revealed substantial variability across sampled entities regarding financial target indicators (X2) operationalized through ROA. The lowest observed performance coefficient (-27,93) appeared in PT Indofarma Tbk's 2022 financial reports, reflecting significant profitability contraction from diminished revenue streams previously generated through COVID-19 vaccine distribution and pandemic-related pharmaceutical products. Conversely, PT Telkom Indonesia demonstrated exceptional financial achievement during 2021, recording a 12,25% return ratio—the sample's peak value—attributable primarily to enterprise division expansion, particularly internet service offerings during global health disruption periods. Across all examined SOEs, profitability metrics averaged 1.0111, suggesting a modest 1% aggregate performance improvement throughout the observation timeframe. The variable personal financial needs (X3) had an average value of 0.0004, indicating that the shareholding by company insiders is relatively very small (0,04%). The minimum value of 0.000 indicates that no insider owns shares in several companies, such as PT Adhi Karya Persero Tbk, PT Elnusa Tbk, PT Indofarma Tbk, and PT Kimia Farma Tbk. The highest recorded value of 0, 01 belongs to PT Waskita Karya Beton in 2020, indicating that only 1% of company insiders hold WTON shares.

Data analysis examining governance oversight metrics (X4) identified PT Kimia Farma operating with notably limited independent supervision during 2020, maintaining only 25% autonomous representation (coefficient: 0,25) on its governing board. On the opposite spectrum, multiple financial institutions—including Bank BNI (2021 and 2022) and Bank BRI (2022)—demonstrated significantly enhanced independence structures with a 70% non-affiliated directorial presence.

Table 3. The Results Of Descriptive Statistical Analysis For Dummy Variables

Description	Frequency	Percentage
Change in Auditor		
There is a change or change of KAP in the company.	10	18,52%
There is no change or change of KAP in the company.	44	81,48%
Total	54	100%
Change in Director		
There is a change or change of KAP in the company.	10	18,52%
There is no change or change of KAP in the company.	44	81,48%
Total	54	100%
Dualism Position		
There are multiple positions held by the managing director.	11	20,37%
There are no concurrent positions held by the managing director.	33	79,63%
Total	54	100%

Statistical compilation across all sampled SOEs revealed that autonomous commissioner representation reached approximately 47,87% (measurement coefficient: 0,4787), substantially exceeding regulatory mandates stipulating a minimum of 30% independent governance participation.

Regarding audit firm transitions representing rationalization elements within our analytical framework statistical compilation revealed 18,52% of examined entities underwent external auditor replacement (binary classification: 1), while the substantial majority (81,48%) maintained continuity in their audit relationships (binary classification: 0). Similarly, executive leadership transitions operationalizing competence dimensions in our model demonstrated that approximately 27,78% of corporations within the dataset experienced directorial restructuring (coded as 1,00 in our analytical schema), whereas 72,22% maintained consistent leadership composition throughout the observation period (coded as 0,00).

The arrogance variable, represented by the dualism position proxy (X7), demonstrates a mean value of 0.2. This shows that in 20% of firms, the CEO or key board members hold concurrent roles within and beyond the company (score 1), whereas 80% do not (score 0). The arrogance variable proxied with the number of CEO pictures in the annual report (X8) had an average value of 6,463. The lowest score of 2 is owned by PT Waskita Beton Precast in 2020, PT Waskita Karya in 2022, and PT Wijaya Karya Beton in 2021. The highest score of 19 was owned by PT Telkom Indonesia in 2021 and PT PP in 2020.

Regarding financial reporting irregularity metrics—our response variable quantified through the F-Score methodology—statistical analysis yielded a central tendency coefficient of -0,256 (dispersion parameter: 0,733), suggesting a notable prevalence of questionable accounting practices across examined state-owned enterprises during the 2020-2022 observation timeframe. Extremity analysis identified PT Semen Batu Raja demonstrating the minimum observed coefficient (-3,24) during fiscal year 2021. Conversely, PT PP (Persero) exhibited the maximum detected irregularity indicator (1,28) during that same annual reporting cycle.

Kolmogrov-Smirnov Normality Test

Normality assumption verification via statistical testing produced an Asymp. Sig. (2-tailed) coefficient—alternatively interpreted as probability parameter (p)—measuring 0.200. Given that this coefficient exceeds standard threshold parameters (specifically, 0,200 surpasses the conventional 0,05 criterion), we can confidently determine that the error term distribution within our mathematical modeling framework demonstrates appropriate Gaussian characteristics. Consequently, fundamental distributional prerequisites essential for parametric regression implementation are adequately satisfied in this analytical context.

Table 4. Normality Test Results: One Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		54
Normal Parameters[b]	Mean	0,000
	Std. Deviation	0,172
Most Extreme Differences	Absolute	0,099
	Positive	0,083
	Negative	-0,099
Test Statistic		0,099
Asymp. Sig. (2-tailed)[c]		0,200

Multiple Linear Regression Analysis

The regression equation in Formula (2) is based on the regression test results. Based on the results of the multiple linear regression equation above, it can be concluded that the influence of each variable is as follows. The resulting constant value is 0.025, which means that if financial stability (X1), financial target (X2), personal financial needs (X3), ineffective monitoring (X4), change in auditor (X5), change in director (X6), dualism position (X7) and the number of CEOS's pictures displayed on company annual report (X8) are zero, then the value of financial statement fraud from one period to another is 0.025. The coefficient value of financial stability (CHANGE), which is a proxy for pressure, is -0.471, which means that this value shows a negative influence between financial stability and financial statement fraud. it can be concluded that if financial stability increases by one unit, financial statement fraud decreases by 0.471. The coefficient value of the financial target (ROA), a proxy for pressure, is 0.013. This means that this value positively influences the financial target and financial statement fraud. it can be concluded that if the financial target has increased by one unit, then financial statement fraud has increased by 0.013. The coefficient value of personal financial needs (OSHIP), which is a proxy for pressure, is -22.407, which means that this value shows a negative influence between personal financial needs and financial statement fraud. It can be concluded that if personal financial needs increase by one unit, then financial statement fraud decreases by 22.407.

The coefficient value of ineffective monitoring (BDOUT), which is a proxy for opportunity, is -0.944, which means that this value shows a negative influence between ineffective monitoring and financial statement fraud. it can be concluded that if ineffective monitoring increases by one unit, then financial statement fraud decreases by 0.944. The coefficient value of change in auditor (ΔCPA), which is a proxy for rationalization, is 0.182, which means that this value shows a positive influence between change in auditor and financial statement fraud. It can be concluded that if the change in auditor has increased by one unit, then financial statement fraud has increased by 0.182. The coefficient value of change in director (DIR_CHANGE), which is a proxy for competence, is 0,415, which means that this value positively influences change in director and financial statement fraud. It can be concluded that if the change in director has increased by one unit, then financial statement fraud has increased by 0,415. The coefficient value of dualism position (DUALISM), a proxy for arrogance, is -0,264, which means that this value shows a negative influence between dualism position and financial statement fraud.

Table 5. Multiple Linear Regression Analysis Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0,025	0,113		0,222	0,825
	Financial Stability (X1)	-0,471	0,345	-0,142	-1,365	0,179
	Financial Target (X2)	0,013	0,006	0,215	2,200	0,033
	Personal Financial Needs (X3)	-22,407	17,932	-0,114	-1,250	0,218
	Ineffective Monitoring (X4)	-0,944	0,218	-0,399	-4,339	<0,001
	Change in Auditor (X5)	0,182	0,067	0,233	2,696	0,010
	Change in Director (X6)	0,415	0,060	0,615	6,979	<0,001
	Dualism Position (X7)	-0,264	0,064	-0,352	-4,145	<0,001
	The Number of CEO's Pictures Displayed on Company Annual Report (X8)	0,014	0,006	0,203	2,280	0,027

Table 6. Test Results of the Coefficient of Determination (Adjusted R)

Model	R	R Square	Adjusted R Square
1	0,826[a]	0,682	0,626

It can be concluded that if the dualism position increases by one unit, then financial statement fraud decreases by 0,264. The coefficient value of the number of CEO pictures displayed on the annual report (CEOPIC), which is a proxy for arrogance, is 0,014, which means that this value shows a positive influence between the number of CEO pictures displayed on the annual report and financial statement fraud. So, it can be concluded that if the position of dualism increases by one unit, then financial statement fraud will increase by 0,014. Based on the regression test results above, the regression equation is as follows.

$$\text{Financial Statement Fraud (Y)} = (0.025) + (-0.471)\ \text{ACHANGE} + (0.013)\ \text{ROA} + (-22.407)\ \text{OSHIP} + (-0.944)\ \text{BDOUT} + (0.182)\ \Delta\text{CPA} + (0.415)\ \text{DIR\_CHANGE} + (-0.264)\ \text{DUALISM} + (0.014)\ \text{CEOPIC} + e \quad (2)$$

Coefficient of Determination Test (Adjusted R)

Below are the findings from the determination coefficient test that was performed. Table 13 presents the results of the determination coefficient test, indicating an Adjusted R^2 value of 0.626. This suggests that the dependent variable, Financial Statement Fraud measured using the F-score, can be clarified by the independent variables that represent the fraud pentagon elements, including financial stability, financial targets, personal financial needs, ineffective monitoring, auditor changes, director changes, dualism position, and the number of CEO pictures in the annual report, accounting for 62.6% of the variation. The remaining 37.4% is attributed to other factors not incorporated in this research model. The relatively high Adjusted R^2 value signifies that the regression model, based on the fraud pentagon framework, effectively explains variations in Financial Statement Fraud within state-owned enterprises.

Simultaneous Test (F Test)

The Table 7 shows the results of the simultaneous (F) test. The test results indicate a significance value of 0,001. Since 0,001 is less than 0,05, following the decision-making criteria for the F test, it can be determined that the regression model is a good fit. Additionally, all independent variables, including financial stability, financial targets, personal financial needs, ineffective monitoring, auditor changes, director changes, dualism position, and the number of CEO pictures in the annual report, have a significant impact on Financial Statement Fraud. This finding reinforces the relevance of the fraud pentagon framework in detecting Financial Statement Fraud within state-owned enterprises in Indonesia.

Partial test (t-Test)

Table 8 below reveals the partial test results (t-test). The $_{\text{table}}$ value in this study is 2,013. According to the results of the partial test (t-test), the hypotheses in this study can be interpreted as follows. The statistical assessment indicates an insignificant connection between organizational financial stability metrics and fraudulent reporting behaviors (p=0.179, exceeding conventional significance thresholds).

Tabel 7. Simultaneous Test Results (F Test)

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,366	8	0,421	12,067	<,001
	Residuals	1,569	45	0,035		
	Total	4,935	53			

Table 15 Partial Test Results (t Test)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Conclusion
	B	Std. Error	Beta			
(Constant)	0,025	0,113		0,222	0,825	
Financial Stability (X1)	-0,471	0,345	-0,142	-1,365	0,179	Not Significant
Financial Target (X2)	0,013	0,006	0,215	2,200	0,033	Significant
Personal Financial Needs (X3)	-22,407	17,932	-0,114	-1,250	0,218	Not Significant
Ineffective Monitoring (X4)	-0,944	0,218	-0,399	-4,339	<0,001	Significant
Change in Auditor (X5)	0,182	0,067	0,233	2,696	0,010	Significant
Change in Director (X6)	0,415	0,060	0,615	6,979	<0,001	Significant
Dualism Position (X7)	-0,264	0,064	-0,352	-4,145	<0,001	Significant
The Number of CEO's Pictures Displayed on Company Annual Report (X8)	0,014	0,006	0,203	2,280	0,027	Significant

The calculated coefficient (-1.365) falls short of critical statistical boundaries, suggesting a directional contradiction to our initial proposition. Consequently, it cannot substantiate the theoretical assertion linking asset stability concerns with increased financial reporting manipulation. The analytical evidence supports a statistically meaningful relationship between return-on-asset expectations and financial statement irregularities (p=0.033, satisfying standard significance criteria). The derived statistical indicator (t=2.200) surpasses established threshold values with appropriate directional alignment. This empirical outcome confirms this research's theoretical framework connecting performance target pressures with heightened financial misrepresentation risk.

Statistical examination reveals insufficient evidence supporting a connection between management ownership patterns and financial disclosure manipulation (p=0.218, exceeding acceptable significance parameters). The calculated relationship indicator (-1.250) demonstrates insufficient magnitude and contradictory directionality compared to theoretical expectations. This analytical outcome necessitates rejecting this research's hypothesized association between leadership personal financial circumstances and reporting integrity compromise. The study findings indicate that ineffective monitoring has a probability value of 0.001, which is less than 0.05, signifying a significant effect on Financial Statement Fraud. The t-value of -4.339 is lower than the t-table value of -2.012896, moving in a negative direction. As a result, the hypothesis that "opportunity represented by ineffective monitoring negatively influences Financial Statement Fraud" is confirmed. The research shows that a change in auditor has a probability value of 0.010, which is below 0.05, demonstrating a strong correlation with Financial Statement Fraud. The t-value of 2,696 exceeds the t-table value of 2,013 in a positive direction. Consequently, the hypothesis that "rationalization represented by auditor changes positively influences Financial Statement Fraud" is accepted. The results reveal that a change in director has a probability value of 0,001, lower than 0,05, demonstrating a significant effect on Financial Statement Fraud. The t-statistic of 6,979 is greater than the t-table value of 2,013, indicating a positive relationship. Thus, the hypothesis that "competence represented by director changes positively impacts Financial Statement Fraud" is validated. The analysis shows that the dualism position has a probability value of 0,001 below 0,05, indicating a significant effect. However, the t-statistic of -4,145 is smaller than the t-table value of -2,013 in a negative direction, contradicting the expected outcome. Therefore, the hypothesis that "arrogance represented by dualism position positively influences Financial Statement Fraud" is not supported, as the relationship is in the opposite direction. The findings indicate that the number of CEO pictures in the annual report has a probability value of 0,027, less than 0,05, signifying a significant impact on Financial Statement Fraud. The t-value of 2,280 surpasses the t-table value 2,013 in a positive direction. Accordingly, the hypothesis that "arrogance represented by the number of CEO pictures in the annual report positively affects Financial Statement Fraud" is supported.

DISCUSSION

The Impact of Financial Stability on Financial Statement Fraud

The study's findings indicate that financial stability does not significantly impact Financial Statement Fraud. While these results do not align with the proposed hypothesis, they align with earlier studies conducted by Faidah & Suwarti (2018), Nabila (2020), and Rusmana & Tanjung (2020). One possible explanation for this outcome is that changes in asset values within state-owned enterprises (SOEs) may result from applying fair value accounting or asset revaluation, leading to fluctuations in asset values without fraudulent intent. Additionally, financial instability within a company does not necessarily drive management to engage in fraudulent activities, such as inflating asset values. On the contrary, such actions could create long-term challenges, particularly in securing additional funding from investors and creditors for the company's sustainability. These findings contrast with studies by Cahyanti & Wahidahwati (2020), Ijudien (2018), Sihombing & Rahardjo (2014), and Nurchoirunanisa et al. (2020), which concluded that financial stability positively affects Financial Statement Fraud. The discrepancy may stem from differences in sample characteristics, as SOEs typically operate under more stringent government oversight, reducing the incentive to manipulate financial stability.

The Impact of Personal Financial Needs on Financial Statement Fraud

The study's findings demonstrate that personal financial needs do not significantly affect financial statement fraud. These findings do not support the hypothesis proposed but are consistent with research conducted by Boermawan & Arfianti (2022), Novitasari & Chariri (2018), and Wahyudi et al. (2022). A possible explanation for this result is that the percentage of insider shareholding in SOEs in Indonesia, as the sample, is relatively small, even close to 0. In addition, this study's results also show managers' independence as company managers and as shareholders. Stock ownership by insiders creates a sense of ownership of the manager towards the company. This sense of belonging is created because managers have professional responsibility towards the company and personal financial interests that are directly related to the company's performance. This allows management to make more strategic and sustainable decisions, as the company's long-term success results in more significant personal financial benefits. This result differs from research conducted by Izzatunnisa (2022) dan Rahmawati et al (2017), which found that personal financial needs positively impact Financial Statement Fraud. This difference may be due to the characteristics of different samples, where SOEs have a more government-centric ownership structure, so insider shareholding is relatively small and does not provide enough incentive to commit fraud.

The Impact of Ineffective Monitoring on Financial Statement Fraud

The study concluded that ineffective monitoring had a significant adverse effect on Financial Statement Fraud. These findings support the hypothesis proposed and are consistent with Cahyanti and Wahidahwati's (2020) and Nabila (2020) research. The explanation for this finding aligns with the theory of agency (Jensen & Meckling, 1976), which explains the relationship with the problem of agency, namely that weak supervision creates a loophole for irresponsible agents to commit fraud for their benefit and to the detriment of shareholders as principals. Ineffective monitoring refers to weak supervisory mechanisms resulting from inadequate internal control within a company. This issue arises when the proportion of independent commissioners is insufficient relative to the total number of commissioners, leading to weakened oversight. The required percentage of independent commissioners is regulated under the Financial Services Authority Regulation Number 57/POJK.04/2017 concerning the Governance of Securities Companies Engaged in Securities Underwriting and Securities Trading Intermediaries. Article 19, Paragraph (2) states, "If the Board of Commissioners consists of more than two members, at least 30% of them must be Independent Commissioners."

A higher number of independent commissioners within a company contributes to a stronger supervisory system, enhancing both oversight and the professional performance of the board of commissioners. The presence of more independent commissioners is expected to improve the effectiveness of corporate monitoring due to their impartial role. As a result, the likelihood of fraud in financial statements can be reduced. These findings differ from the research by Nurchoirunanisa et al. (2020), which did not establish a significant relationship between ineffective monitoring and Financial Statement Fraud. The discrepancy may stem from variations in measurement methods or differences in sample characteristics.

The Impact of Change in Auditors on Financial Statement Fraud

The study reveals that a change in auditors significantly and positively impacts Financial Statement Fraud. These findings support the hypothesis proposed and are consistent with research carried out by Pambudi et al. (2023), Mardeliani et al. (2022), and Nurchoirunanisa et al. (2020). According to Nabila (2020), replacing external auditors is considered to be able to hide Financial Statement Fraud discovered by previous auditors. Companies tend to replace independent auditors when they want to hide fraud or unnatural things from the public. Companies with these harmful desires will seek the truth with their methods without paying attention to the public when the information presented by the company is not genuine or unreliable.

The replacement of external auditors in a company is a weakness of audit because a new auditor is still new to the company. This company will use this to commit Financial Statement Fraud. This result is different from the research carried out by Cahyanti & Wahidahwati (2020), Mardeliani et al. (2022), Nurchoirunanisa et al. (2020), and Rusmana & Tanjung (2020), which did not find a significant influence or found an opposite influence between change in auditor and Financial Statement Fraud. These differences may be due to differences in sample characteristics or study periods.

The Impact of Dualism Position on Financial Statement Fraud

The study findings indicate that the position of dualism significantly negatively impacts financial statement fraud. These findings do not support the proposed hypothesis that expects a positive influence but are consistent with research conducted by Pambudi et al. (2023). The theory of agency by Jensen and Meckling (1976) explains that agents, as parties contracted by shareholders (principals) to work for the benefit of shareholders, will do their best to improve their company's performance. Dual positions do not always aim or bring negative influences. The existence of dual positions that result in an agent being selfish, too busy, and less than optimal in accounting for his performance to shareholders cannot always be a benchmark.

Other aspects that affect the process and mechanism of dual positions, such as internal control and good supervision, also determine the possibility of dual positions becoming an arrogant foothold for the presidential director. Implementing dual positions certainly meets the company's standard operating procedures (SOP), so it will limit the power and become a "rudder" that will direct the president director, who has dual positions, to maximize his performance for the company. According to Pambudi et al. (2023), concurrent positions carried out by the company's Director or CEO can take advantage of his position to improve the company's performance and maintain his performance so that he remains in the company. This result is different from research conducted by Bayutama & Sulistiyowati (2023), Mardeliani et al. (2022), and Nabila (2020), which found a positive influence between dualism position and Financial Statement Fraud. This difference may be due to differences in sample characteristics, where SOEs have a stricter governance structure and more intensive supervision from the government.

The Impact of the Number of CEO Pictures in Annual Reports on Financial Statement Fraud

Our analysis demonstrates that executive photographic representation frequency within corporate annual publications exhibits a statistically meaningful positive correlation with accounting deception practices. This empirical outcome confirms our initial proposition and aligns with the scholarly observations of alternative researchers examining governance visualization patterns. This relationship can be interpreted through principal-agent theoretical constructs, wherein an inherent tension exists between organizational leaders seeking status reinforcement through visual prominence in corporate documentation and investors pursuing reliable returns from enterprises presumably directed by credible management figures.

The executive inclination toward prominent visual representation in financial documentation frequently manifests as a mechanism for professional identity reinforcement and organizational status signaling—behavioral patterns potentially indicative of executive overconfidence. Contemporary psychological frameworks suggest that such self-promotional tendencies may reflect underlying personality characteristics where individuals demonstrate heightened self-regard and validation-seeking behaviors within professional contexts. These conclusions diverge from previous investigative efforts, which failed to establish statistically significant associations between executive imagery prevalence and financial misrepresentation. Such analytical divergence might be attributed to methodological variations, sampling frame differences, or temporal context distinctions between research initiatives.

Theoretical Implications

Our investigation advances scholarly understanding by validating and extending the multidimensional fraud assessment model within Indonesian government-controlled business entities. Our analytical outcomes demonstrate that specific components within each pentagon construct dimension—economic pressures, governance weaknesses, cognitive justifications, professional capabilities, and executive self-importance—meaningfully predict accounting manipulation behaviors when measured through carefully selected operational indicators.

These empirical patterns substantiate the conceptual premise that accounting deception represents a multifaceted organizational phenomenon resulting from interacting behavioral, structural, and situational elements as conceptualized in comprehensive fraud assessment frameworks. Notably, our findings provide substantive empirical validation that leadership capability factors and executive self-aggrandizement tendencies—elements extending beyond traditional tripartite deception models—demonstrate particular relevance within the governance structure of Indonesia's public sector corporations.

The statistical framework developed through our investigation captures approximately 62.6% of financial misrepresentation variability, indicating the substantial explanatory capacity of our expanded analytical approach when examining government-controlled enterprises. This robust explanatory performance validates the conceptual advancement from simplified triadic deception models toward more comprehensive pentagonal analytical frameworks for enhancing accounting irregularity identification within complex organizational environments.

Practical Implications

Our findings generate several actionable insights for stakeholder groups: First, regulatory authorities should strengthen independent oversight mechanisms, as supervisory board composition significantly influences reporting integrity; regulatory bodies should intensify monitoring of independent directorship compliance while enhancing qualitative aspects of governance participation. Second, accounting professionals should implement heightened professional skepticism when engaging with organizations experiencing recent attestation provider transitions, adopting expanded investigative procedures, and thoroughly examining the circumstances precipitating auditor replacement. Third, executive leadership teams should implement balanced performance evaluation frameworks that mitigate excessive short-term achievement pressures, developing incentive structures aligning managerial behavior with sustainable organizational outcomes. Fourth, investment community participants should incorporate broader risk assessment indicators in evaluation protocols, considering governance transitions, attestation provider changes, and visual representation patterns in corporate communications as potential accounting manipulation risk signals.

CONCLUSION

This study shows that the Pentagon fraud framework has good explanatory power in detecting Financial Statement Fraud in state-owned companies in Indonesia. In particular, financial targets, ineffective monitoring, changes in auditors, changes in directors, dualism positions, and the number of CEO pictures in the annual report significantly affect financial statement fraud. These findings confirm that Financial Statement Fraud is a complex phenomenon influenced by various factors, not only by pressures and opportunities as postulated in the traditional fraud triangle model, but also by rationalization, competence, and arrogance as proposed in the Pentagon's fraud framework. The results of this study also highlight the importance of good corporate governance, adequate supervision, and setting realistic financial targets in preventing Financial Statement Fraud.

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