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Fraud Pentagon Theory for Detection of Fraudulent Financial Reports: A Preliminary Study in Manufacturing Enterprises in Indonesia

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Abstract: The study aims to test whether the five elements of the Fraud Pentagon are useful in detecting fraud in financial reports. These five elements require proxy variables for analysis and cannot be directly measured. Pressure is measured through external pressure. The nature of industry can be used to measure opportunity. Rationalization is measured by AUDCHANGE. Capability is measured through DCHANGE. Arrogance is measured through the CEO's picture. 23 manufacturing enterprises in the consumer goods category on the IDX were included in the study sample for the 2019–2022 period. The research samples consist of financial statements and annual reports as secondary data. The data was analyzed using logistic regression, and the samples were chosen through purposive sampling. Results showed the significant impact of opportunity, pressure, rationalization, and arrogance on financial report fraud. And for the variable of capability, it showed that it has no effect on fraudulent financial statements.

Keyword: Fraudulent Financial Statement, Consumer Goods; Detection Of Financial Fraud

INTRODUCTION

A vital source of information for external stakeholders of a firm is its financial statements (Bornemann et al., 2023; Bourveau et al., 2023; Grewal et al., 2024). Decision-making is based on the information it contains, which includes financial performance, financial situation, and cash flow. Users of financial statements will use the data in the financial statements as a standard to evaluate the efficacy and efficiency of an organization. In order to draw consumers' attention to financial statements, management will thus make every effort to publish the best financial statement data (Gupta & Mehta, 2024; Sri & Solimun, 2019).

Companies in the business world strive to promote their interests by competing with one another (Bengtsson & Kock, 2000). However, to survive in a competitive market, some companies resort to fraudulent practices, such as presenting inaccurate and irrelevant financial reports (Afjal et al., 2023). Fraudulent financial reporting refers to manipulating

data in financial statements. It is a fraudulent practice that involves the intentional misrepresentation of financial information in order to deceive stakeholders.

Financial statements are essential to entities, but management sometimes uses fraudulent financial reporting to cover-up their mistakes. This scandal involves posting pseudo-profits since 2006, which the actual circumstances in these statements to present a positive performance by committing fraudulent financial reports (Agustina & Pratomo, 2019).

Survey by ACFE 2019 show that fraudulent financial statements occupies the 3rd position after corruption and asset abuse. The following is the data on the percentage of the ACFE survey in 2019:

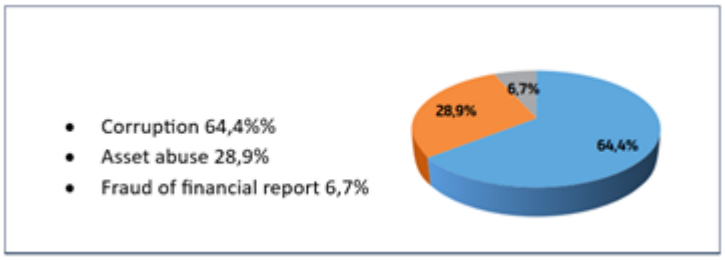

Figure 1. Fraud Survey ACFE 2019

Based on figure 1 in terms of the percentage of financial statement fraud, which is 6.7% in the third position, in the second position is asset abuse at 28.9% and in the first position is corruption at 64.4%. Financial statement fraud has the largest loss value of 67.4% with a nominal loss of less than equal to 10 million.

One of the Company's sectors where financial statement fraud often occurs is the manufacturing industry. Manufacturing companies have unlimited liability meaning that the personal wealth of the company owner can also be used as collateral against all of the company's debts. In addition, manufacturing companies have risks related to the company's obligations because funding comes from outside the company, so the chance of financial statement fraud is very large. One example of a case of financial statement fraud that has been committed by a public manufacturing company is the case of PT Tiga Pilar Sejahtera Food Tbk. manipulating the 2017 financial statements, namely deliberately inflating the value of the company's receivables (overstatement) which should have been recorded at Rp200 billion to Rp1.6 trillion. So that misleads investors to buy AISA shares that look good but turn out to be not as good as reported.

SAS No. 99 fraudulent financial statement is the deliberate manipulation of financial statement information to deceive users of the report (Ramos, 2002). This type of fraud is typically committed to hide the true performance of a company, maintain control or status, and increase profits and wealth. Then, an accounting act is considered fraudulent if it involves any of the following: a) financial statement that has been intentionally misrepresented or omitted in order to mislead users of the statement intentionally, one that results from fraud in financial reporting; b). the financial reports are not presented in compliance with Indonesia's generally accepted accounting standards due to misstatement resulting from inappropriate treatment of assets (also known as misuse or embezzlement) connected to asset theft (Ikatan Akuntan Publik Indonesia, 2012). Based on expert definitions, one may infer that fraud is a purposeful conduct by an individual or entity to deceive, conceal, or profit in a situation where the people involved may suffer due to the activity. The information provided in financial reports may not reflect its original status due to fraud in financial reports, which might lead to users of financial statements making poor judgments and suffering significant losses.

The purpose of these intentional misrepresentations is usually to fool those who use financial statements. Two distinct forms are included in the study's definition of dishonest financial reporting (Beasley, 1996). In the first category, there are situations where management purposefully gives important but deceptive financial information to third parties who use the statements. Included in the second category are examples of asset theft by high-ranking officials, including chief executive officers, directors, treasurers, and chief financial officers.

Fraud pentagon is a theory that outlines the elements that can explain financial statement fraud occurring. In 2011, Crowe introduced the fraud pentagon as a further improvement of Cressey's theory (1953), known as the fraud triangle, with Wolfe & Hermanson's theory (2004), known as the fraud diamond (Sholikhah et al., 2024). The theory presented can be utilized to elucidate instances of fraud in different scenarios. Crowe's fraud pentagon concept is a regenerative theory that describes the factors that lead to fraud. This theory comprises five essential components, as shown in the figure below:

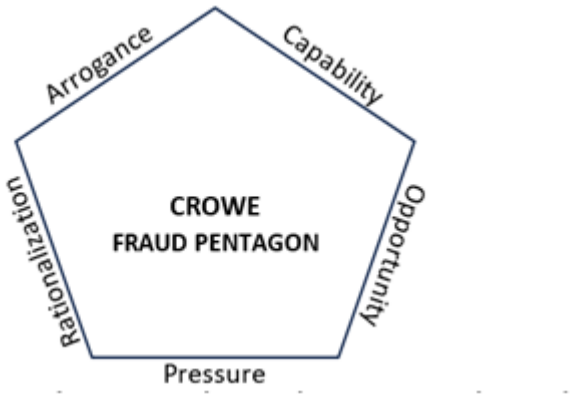

Figure 2. Fraud Pentagon Element (Crowe Howarth, 2011)

The first element is pressure, a situation that can provoke someone to carry out fraudulent acts. Pressure can include everything, financial and non-financial issues. The existence of depression due to pressure from the company's internal and external divisions can cause fraud (Prayoga & Sudarmaji, 2019). This research measures pressure indirectly, using external pressure as a proxy. External pressure is calculated as leverage, which is derived by dividing total liabilities by total assets (Ratmono et al., 2020). When a company uses too much debt, it can become endangered. This happens when the company falls into the category of extreme leverage, where it becomes trapped in a high level of debt that is difficult to release; management may face pressure due to the high credit risk stemming from large debts, which can trigger fraud. Studies conducted shows that the effect of external pressure on fraud financial reporting is significant (Narsa et al., 2023; Purwaningtyas & Ayem, 2021). A study showed that fraud in financial reporting is positively impacted by external pressure (Achmad et al., 2022).

Opportunities for fraud arise from weak monitoring, internal controls, and abuse of power (Lastanti, 2020). The nature of the industry can also play a role in creating opportunities for fraud. These opportunities may arise due to weaknesses in the internal control of the enterprise, the ineffectiveness of management supervision, or the abuse of position or authority (Skousen et al., 2009). According to SAS No.99, companies that rely heavily on estimates in their operational activities face an inherent risk due to the nature of their industry. Such companies, especially those that use estimates extensively, are susceptible to fraudulent activities. In addition to estimating mistakes, manipulations are frequently done in an effort to lower sales and receivables expenses (Narsa et al., 2023).

According to studies, the nature of the industry can influence fraud in financial reports (Handoko & Aurelia, 2022). Additionally, a research indicates that nature of industry can significantly affect fraud in financial reports (Faradiza, 2019).

Rationalization is a person's mindset that makes them justify criminal behavior. Fraud perpetrators often justify their illegal conduct by convincing themselves that they are trustworthy (Owusu et al., 2022). Rationalization can arise when a person tries to justify their actions, which may include fraudulent behavior. It's highlighted that audacity or confidence induces one or more people to continue deception while simultaneously rationalizing their immoral behavior rationally (Lou & Wang, 2011). On the other hand, the dependability and credibility of the financial reports are put questionable if the manager's integrity is called into question. The quality of financial reports depends substantially on the integrity and attitude of the business management.

According to SAS No.99, the cycle of auditor turnover can be a factor that facilitates rationalization within a company. While changes in auditors may occur for legitimate reasons, the risk of audit, failure and potential legal consequences may increase in subsequent years. Then, a significant number of fraudulent activities in their data were carried out during the first two years of the auditor's change (Loebbecke et al., 1989). Companies that engage in fraudulent activities are more likely to change or switch auditors as a way of covering up any trails of fraud discovered by the previous auditor. Therefore, it is more common for companies involved in fraud to change auditors more frequently. This is because it reduces the likelihood of detecting financial statement fraud by the enterprise (Rachmawati, 2014). A study shows the significant effect that AUDCHANGE has on financial report fraud. Other studies show that auditor change has a positive influence on fraudulent financial reporting (Novitasari, 2018; Utama et al., 2018; Wahyuni & Budiwitjaksono, 2017; Yanti & Munari, 2021).

Capability is the individual's tendency to commit fraud, driven by a desire to take advantage of available opportunities (Wolfe & Hermanson, 2004). The change of directors is one aspect that can lead to the emergence of fraudulent financial statements because these changes have an impact on management's efforts to develop the performance of cash managers by modifying the company's body or company needs to hire new directors who possess more advanced skills than the previous management. In the case of a change of director, the company may dispose of large assets to increase profits and maximize bonuses for the outgoing CEO before their retirement or contract expiration. CEOs approaching retirement or contract expiration often prioritize maximizing reported profits for their bonuses. Previous studies showed that changes in directors have an affects on fraudulent financial report (Ratmono et al., 2020). The study found that a change of director can impact the occurrence of financial report fraud (Evana et al., 2019).

Arrogance is the immoral character of superiority or arrogance of those who believe that internal control cannot be applied to themselves (Horwath, 2011). Fraud can occur due to the high level of arrogance of CEOs. CEO's picture featured in an annual report may be a significant indicator of their level of arrogance. An annual report with a higher number of CEO images may indicate a high degree of CEO conceit inside the organization. An arrogant person or organization can suffer negative consequences, as it can lead to the destruction of careers and the enterprise itself (Mohamed Yusof K. et al., 2013). Studies conducted show that variable arrogance measured by the CEOPIC has a significant impact on fraudulent financial report (Haqq & Budiwitjaksono, 2019). Moreover, researches demonstrates that the CEOPIC affects fraudulent financial report (Dewi & Yuliati, 2022; Triastuti et al., 2020).

METHOD

In this study, a quantitative approach was taken, and the research form used included associative causal research. The research relied on secondary data sources, in especially the yearly and financial reports of the manufacturing industry's consumer goods on the IDX 2019-2022 or www.idx.co.id. Purposive sampling was chosen by the sample, in particular, the selection of samples according to predefined standards in order to get the desired information without obtaining it via the use of other objects. A total of 23 companies were selected as the population, with a sample size of 92 based on specific criteria. The study will focus on several variables contributing to fraudulent financial statements: pressure, opportunity, rationalization, capability, and arrogance.

The independent variable (X1) in this study is pressure proxied with external pressure. A company's capacity to pay off debt and fulfill commitments may put it under external pressure. The metric used to determined external pressure is the leverage ratio.

$$Leverage = \frac{Total\ liabilities}{Total\ Asset}$$

The second variable in the research is opportunity (X2), and this variable proxied by the industry. To measure the nature of the industry, we can use a proxy change in the estimated receivables received on sales. Receivables are associated with subjective assessments of bad debts. Management may utilize the account as a means to modify financial statements for their own benefit. Here is the formula for calculating the nature of industry:

$$\text{NOI} = \frac{\text{Receivable}_{t}}{\text{Sales}_{t}} - \frac{\text{Receivable}_{t-1}}{\text{Sales}_{t-1}}$$

The auditor change serves as a proxy for rationalization, which is the third independent variable (X3) in this study. Changes in auditors (AUDCHANGE) are assessed utilizing dummy variables for AUDCHANGE alter within the 2019–2022 period, it is given a score of 1. Otherwise, if there has not been a change in auditors in the 2019-2022 period, a zero score is given.

The independent variable (X4) in this research is capability proxied by DCHANGE. The change of director is measured using a dummy number. If there is a change of directors in 2019-2022, it is given a score of 1; otherwise, if there has not been a change of director in the 2019-2022 period, a zero score is given (Handoko & Aurelia, 2022).

The CEO's picture in published annual reports was used to proxy arrogance, the independent variable (X5). According to Crowe (2011), frequent number of CEOs can be counted from enterprises' display profiles or pictures, photos, achievements. It is important to note that the annual report often includes information about the CEO's track record. This information may be repeated several times and is intended to provide users with a deeper understanding of the CEO's personality. It should be noted that this information does not necessarily indicate arrogance on the part of the CEO (Alyani et al., 2023). The study utilized logistic regression for data analysis. The equations derived from it are as follows:

$$\text{CEOPIC} = \text{Number of CEO picture featured in the company's annual report}$$

$$\text{L}_{\text{n}}\ \frac{\text{fraud}}{1-\text{fraud}} = \text{b}_0 + \text{b}_1\text{LEVERAGE} + \text{b}_2\text{RECEIVABLE} + \text{b}_3\text{AUDCHANGE} + \text{b}_4\text{DCHANGE} + \text{b}_5\text{CEOPIC} + \text{e}$$

FRAUD : *Fraudulent financial statement*

L_n : dummy variable
e : *logarithm value*
b_0 : *constant*
b_{12345} : Coefficient Regression
LEVERAGE : Leverage Ratio
RECEIVABLE : Receivable ratio
AUDCHANGE : Change in auditor
DCHANGE : Change in director
CEOPIC : frequent of CEO-picture

RESULTS AND DISCUSSION

We used descriptive statistical analysis in this study to get an overview of each research variable. The five independent variables were pressure, rationalization, opportunity, capability, and arrogance, while the dependent variable was a fraudulent financial statement. The following presents the findings from the study's descriptive statistics analysis:

Table 1. Descriptive statistics (pressure, opportunity, arrogance)

	Minimum	Maximum	Mean	Std. Deviation
Pressure	.10	.78	.3543	.17596
Opportunity	-.14	.26	.0070	.05942
Arrogance	2	12	5.92	2.508

Source: Processed Data, 2023

For the first variable (X1), pressure is proxied by external pressure. Leverage is used as a measure of external pressure in this study. After an analysis of the firms' leverage ratio, a minimum value of 0.10 and a maximum value of 0.78 were found. The sample size consisted of 92 research samples from 2019–2022, with an average value of 0.3543. The variation in leverage across different companies differed, with a standard deviation value of 0.17596. Leverage can increase risk because it can make it harder for an entity to pay its debts. This, in general, increases the likelihood of a fraudulent financial report.

The variable opportunity (X2), represented by the nature of industry, has the lowest value of -0.14 and the highest value of 0.26, and an average value of 0.0070. This means that the likelihood of financial statement fraud may differ depending on the industry. The variance in the nature of industry among different companies is also apparent, with a standard deviation value of 0.05942. Furthermore, changes in receivables can be a trigger for management to commit fraud in financial statements.

The arrogance variable measured by the CEO PIC's average value was 5.92, with a min value of 2 and a max value of 12. The degree of variation in each company's CEO's picture is different, with a standard deviation value of 2.508. This shows that CEO arrogance can be used as one of the factors that can influence company behavior. The CEO may be more likely to commit actions that harm the company, such as financial statement fraud or regulatory violations, or abuse the company's authority and policies.

Table 2 Descriptive of Variable Rationalization

Rationalization					
		Frequent	Percent.	Val. Percent	Cum Percent
Valid	No change auditor	88	95.7	95.7	95.7
	Change auditor	4	4.3	4.3	100.0
	Total	92	100.0	100.0	

Source: Processed Data, 2023

The rationalization variable shows that there were 4 times as many auditor replacements among the 92 samples of the manufacturing industry's consumer goods on the IDX for 2019–2022. The result shows that companies in the consumer goods business of manufacturing enterprises listed on the IDX during that period very rarely changed auditors. Infrequent changes of auditors indicate that the company has a low level of rationalization, so the possibility of fraud is also low. A high value of the rationalization variable reflects that the entity has implemented a significant level of rationalization, so the possibility of fraud is also high. The change of auditors can be perceived as a negative signal for investors and creditors. Investors and creditors may interpret auditor turnover as a sign that there is a problem with the company. Therefore, companies tend to be reluctant to change auditors unless

Table 3 Descriptive of Variable Capability

Capability					
		Frequent	Percent	Val. Percent	Cum. Percent
Valid	No Change Director	69	75.0	75.0	75.0
	Change Director	23	25.0	25.0	100.0
	Total	92	100.0	100.0	

Source: Processed Data, 2023

Capability variables are measured through proxy variables such as change in director and dummy variables. A value of 0 indicates that there has been no change in the enterprise board of directors, while a value of 1 indicates that there has been a change. The results showed that out of 92 samples of the manufacturing industry's consumer goods on the IDX for the 2019–2022 period, 25% of them experienced changes in their board of directors, while 75% did not. This indicates that manufacturing enterprises listed on the IDX in the consumer goods sector frequently change directors, which increases the risk of fraudulent financial statements.

Table 4 Hosmer and Lemesho's Goodness of Fit Test

Test	chi-square	Sign
Hosmer and Lemeshow's Goodness of Fit Test	0,284	0,385

Sources: Processed Data, 2023

Based on table 4, it is known that the significance value in Hosmer and Lemeshow's Goodness of Fit test is 0.385. The Hosmer and Lemeshow's Goodness of Fit is higher than 0.05. Thus, it can be concluded that the logistic regression model is capable of accurately predicting the observed data (fit model) or can be deemed appropriate as it aligns with the data from the observations.

Tabel 5 Overall Fit Model Test

Test	Value -2 LL, block number = 0	Value -2 LL block number = 1
Uji Overall Fit Model	11,033	0,693

Source: Processed Data, 2023

Based on Table 5, it is known that the value of Nagelkerke R square in the coefficient of determination test is 0.872. The value of Nagelkerke R square is > 0.75. Thus, it is possible to conclude that the independent variable explains the dependent variable with considerable strength.

Table 6 Wald Test

Variables in the Equation

								95% C.I.for EXP(B)	
		B	**S.E.**	**Wald**	**df**	**Sig.**	**Exp (B)**	Lower	Upper
Step 1[a]	Pressure (X_1)	-.283	68.643	.533	1	.00134	1.507	1.140	.408
	Opportunity (X_2)	-.451	77.673	.491	1	.00035	2.443	1.276	.701
	Rationalization (X_3)	.394	33.348	.645	1	.00211	1.101	1.278	.522
	Capability (X_4)	.082	54.603	.483	1	.32140	0.409	.021	.377
	Arrogance (X_5)	-.428	68.643	.333	1	.00010	1.912	1.064	.408
	Constant	.263	79.691	.591	1	.00011	1.507		

Source: Processed Data, 2023

Presented below is the developed regression equation.

$$\mathbf{Y = 0.263 - 0.283X_1 - 0.451X_2 + 0.394X_3 + 0.082X_4 - 0.428X_5}$$

Description

1. The constant, 0.263, indicates that the likelihood of financial statement fraud is 0.263 if all independent variables are equal.
2. The regression coefficient for variable pressure (leverage) is -0.283 with a negative sign. Every increase in leverage value affects financial statement fraud, which is -0.283.
3. The regression coefficient for variable opportunity (receivable) is -0.451 with a negative sign. Every increase in the receivable value affects financial statement fraud, which is -0.451.
4. The regression coefficient for variable rationalization (AUDChange) is 0,394, with a positive sign. Financial statement fraud is impacted by each rise of 1 AUDChange value, or 0,394.
5. The capability-variable regression coefficient (DChange) is 0,082 with a positive sign. Financial statement fraud is affected by increases of 1 DChange value, or 0,082.
6. The regression coefficient for variable arrogance (CEOPIC) is -0.428 with a negative sign. Every increase in a CEO's image value affects the fraudulent financial statement, which is -0,428.

The Wald test results show that variable pressure (X1) that is proxied by leverage impacts the occurrence of financial statements fraud by companies in the consumer goods manufacturing sector, as listed in the IDX 2019–2022. The statistical probability value of variable pressure is 0.000134. This indicates that the first hypothesis (H1) is accepted because it is less than 0.05. High leverage can lead to high pressure as the company's obligation to meet ongoing debts is very high, which increases the potential risk of fraudulent financial reports. To assess the company's ability to return invested funds or loans, investors and creditors should consider the company's track record of repaying previous debts as well as the company's relationships with its creditors. The company's management is triggered to present financial statements to make them look as good as possible. This research is supported by the studies carried out (Khoirunnisa et al., 2020; Purwaningtyas & Ayem, 2021), which found that financial statement fraud was significantly affected by external pressure.

The Wald test shows that the second variable, opportunity (proxied by the nature of the industry), has a significant impact on the occurrence of fraudulent financial statements in the manufacturing sector of the consumer goods industry on IDX 2019–2022. The findings show that the opportunity variable has a statistical probability value of 0.00035, which is less than 0.05. Therefore, we may accept the second hypothesis (H2). Every member of the member of the management of a firm might have a different response to the state of accounts receivable. Such a strong financial position or ability to dominate a particular industry or sector allows

an entity to impose certain terms or conditions on suppliers or customers. The large number of trade receivables owned by the organization will definitely reduce the amount of cash that the organization can use for its operational activities.

The greater the percentage of variations in receivables, the greater the degree of fraudulent financial statements perpetrated by the organization. This is done by companies by overestimating reserve accounts or other bad debt options to lower profits and reduce taxes. Flexible accounting policies can provide opportunities for management to manipulate financial statement data. Management may choose accounting policies that benefit the company, even if those policies do not conform to accounting principles (GAAP). The findings of this research align with previous study (Faradiza, 2019), which indicates that the opportunities proxied by the nature of the industry have an impact on fraudulent financial statement. Additionally, studies conducted suggests that the nature of the industry has a positive impact on fraudulent financial reports (Aprilia & Furqani, 2021).

The fraudulent financial statements are significantly impacted by the findings of the Wald test for rationalization variables in enterprises operating within the consumer goods industry's manufacturing sector contained in the IDX 2019–2022 period. This is supported by the results of the t-test. With a probability value less than 0.05, the rationalization variable's statistical t-value is 0.00211. The results show that the third hypothesis (H3) is accepted. This shows that a change of auditors made by companies can be considered an effort to eliminate traces of fraud identified by previous auditors, and an entity can change auditors to reduce the possibility of detecting financial statement fraud. This result is supported by research conducted (Yanti & Munari, 2021) and a study (Yusniarti et al., 2021), showing that changes in auditors have a significant effect on financial statement fraud.

The capability variable's findings show a significant value of 0.32140, which is higher than 0.05. The fourth hypothesis (H4) has been rejected, according to the result. This means that the shareholders are satisfied with the performance of the board of directors in the manufacturing companies of the consumer goods industry contained in the IDX for the 2019–2022 period. As a result, there is no agency problem that requires shareholders to change directors since the board of directors is in accordance with the expectations of shareholders. Nonetheless, there have been instances of board turnover. This could be due to shareholders wanting to improve the company's performance by appointing new directors who are expected to be more competent and innovative. In addition, there is supervision from the board of commissioners, who are representatives of shareholders responsible for protecting their interests. Therefore, if the directors' work is not up to par, they will soon be replaced with more competent directors to ensure the optimal performance of the company. This study's findings contradict the study conducted (Evana et al., 2019), found that a change of director has an effect on fraudulent financial reports.

The results of the fifth variable, arrogance, show that it has a significant effect on the fraudulent financial statements of the manufacturing sector of the consumer goods industry contained in the IDX for the 2019–2022 period. This is supported by the results of the t-test. The statistical t-value for the arrogance variable is 0.00010, with a probability value smaller than 0.05. The results show that the fifth hypothesis (H5) is accepted. The arrogance of the CEO will make him more likely to take risks, including the risk of committing fraudulent financial statements. Including a large number of CEOPIC in the company's annual financial statements can make the CEO feel invincible and above the rules and consequences of the company, which can result in fraudulent activity. Despite the internal controls put in place by the company, the CEO may disregard them due to their position of power. Unfortunately, no internal control system can fully restrict the actions and behavior of a CEO due to their authority within the entity. The results of this study are supported by research conducted (Haqq & Budiwitjaksono, 2019), who found that arrogance, as determined by CEOPIC,

significantly affects financial statement fraud. According to Shabrina et al. (2023), research shows that financial statement fraud is positively impacted by CEOPIC (Isalati et al., 2023).

CONCLUSION

The study's results indicate that the majority of factors in the Fraud Pentagon contribute to financial statement fraud. Pressure proxied by external pressure (leverage), opportunity proxied by the nature of the industry, rationalization proxied by AUDChange, and arrogance proxied by the CEO's picture have a significant effect on fraudulent financial statements. The capability variable proxied by a change in director has no effect on fraudulent financial statements.

Expanding the sample of companies beyond the manufacturing sector and extending the observation time is suggested for future studies to find out fraudulent financial reporting in other sectors, conduct a complete examination of fraudulent financial reporting, and use other variables such as financial target, financial stability, ineffective monitoring, organizational structure, and internal control as a measure of fraudulent financial reporting. It is highly recommended to conduct additional research to extend the study period beyond 2019–2022.

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