

## **Determinants of Financial Statement Fraud: Testing the Fraud Triangle Theory, A Study of Public Companies Listed on The Indonesia Stock Exchange**

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### **Abstract**

This study aims to provide empirical evidence on the determinants of financial statement fraud among public companies listed on the Indonesia Stock Exchange by testing the Fraud Triangle theory. A causal associative research design was employed, utilizing a purposive sample of 76 companies, comprising 38 fraud and 38 non-fraud firms. Data were analyzed using binary logistic regression. The findings reveal that external pressure, proxied by Debt to Total Assets, and internal pressure, proxied by Earnings Per Share, have a positive and significant effect on the probability of financial statement fraud. Conversely, internal control, proxied by the proportion of independent commissioners, significantly reduces the likelihood of fraud. However, rationalization, indicated by auditor and director turnover, does not show a significant impact. This study provides valuable insights by highlighting that excessive debt, ambitious financial targets, and weak board oversight are primary drivers of fraud. It emphasizes the critical role of independent commissioners in corporate governance and advises investors to scrutinize company fundamentals.

**Keywords:** financial statement fraud; fraud triangle; opportunity; rationalization

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### **INTRODUCTION**

Public companies are required to publish annual financial statements as a form of accountability to shareholders and other stakeholders. Financial statements function as an important source of information for investors in evaluating corporate performance and making economic decisions. However, the reliability of financial statements can be threatened when management intentionally manipulates financial information to present a misleading picture of company performance. Financial statement fraud is considered one of the most damaging forms of corporate misconduct because it reduces market confidence and may lead to substantial losses for investors and regulators (ACFE, 2024). Financial statement fraud refers to intentional misstatements or omissions of material information in financial reports designed to deceive users of those statements. Cases of fraudulent financial reporting have continued to emerge in

both developed and emerging markets, including Indonesia. Several public companies listed on the Indonesia Stock Exchange have been sanctioned by the Financial Services Authority due to misstatements, delayed reporting, or violations of disclosure requirements. Such incidents indicate that fraudulent financial reporting remains a serious governance issue in Indonesian capital markets (OJK, 2024).

For example, the Financial Services Authority (OJK) has sanctioned several listed companies for violations involving delayed financial reporting, inaccurate disclosures, and misstatements in annual reports. These enforcement actions demonstrate that financial reporting quality remains a major regulatory concern in Indonesia's emerging capital market environment. Such cases also indicate that weaknesses in corporate governance and monitoring mechanisms may create opportunities for fraudulent reporting practices.

The occurrence of financial statement fraud can be explained through Agency Theory, which describes the relationship between shareholders as principals and managers as agents. Agency conflicts arise because managers often possess more information than shareholders, creating information asymmetry. Under these conditions, managers may act opportunistically to maximize personal interests rather than shareholder wealth. This information imbalance increases the possibility of earnings manipulation and fraudulent reporting when monitoring mechanisms are weak (Jensen & Meckling, 1976). To further explain fraudulent behavior, this study adopts the Fraud Triangle Theory, which states that fraud occurs due to three main elements: pressure, opportunity, and rationalization. Pressure refers to financial or non-financial demands faced by management. Opportunity arises when weak internal control allows fraud to occur. Rationalization reflects the perpetrator's justification for unethical behavior. The Fraud Triangle remains one of the most widely used frameworks in explaining financial reporting fraud in corporate environments (Cressey, 1953; Wolfe & Hermanson, 2004). Previous studies have shown inconsistent findings regarding the determinants of financial statement fraud.

Some studies found that leverage and financial targets significantly increase fraud risk, while others reported weak or insignificant relationships. Similarly, board independence and auditor changes have produced mixed empirical evidence across different institutional settings (Ruankaew, 2016; Lastanti et al., 2022). These inconsistent findings indicate that the determinants of fraud may vary depending on governance quality and market characteristics. Most prior studies in Indonesia focused only on manufacturing firms or examined fraud indicators separately. Most prior studies in Indonesia focused only on manufacturing firms or examined Fraud Triangle variables separately. In addition, previous findings remain inconsistent across different governance environments and institutional settings. Limited research has comprehensively tested the Fraud Triangle variables simultaneously using matched fraud and non-fraud firms among public companies listed on the Indonesia Stock Exchange. This study addresses this gap by applying a matched-pair design and examining the Fraud Triangle dimensions simultaneously within the context of the Indonesian capital market as an emerging market characterized by varying governance quality. Therefore, this study aims to provide empirical evidence regarding the effect of external pressure, internal pressure, opportunity, and rationalization on financial statement fraud by applying binary logistic regression to matched company samples. This study contributes by strengthening the empirical relevance of Fraud Triangle Theory in emerging capital markets. Indonesia represents an important emerging market context where corporate governance quality, investor protection, and regulatory enforcement continue to evolve. These characteristics may influence managerial incentives and the effectiveness of fraud prevention mechanisms.

## LITERATURE REVIEW AND HYPOTHESES

Agency Theory explains that managers as company agents may pursue personal

interests that conflict with the interests of shareholders as principals. Because managers control internal corporate information, they may exploit information asymmetry by manipulating financial reports for private benefit. This condition becomes more severe when monitoring systems are weak, increasing the probability of financial statement fraud (Jensen & Meckling, 1976). Agency Theory therefore provides a fundamental explanation for why corporate governance mechanisms are essential in preventing fraudulent financial reporting.

Fraud Triangle Theory states that fraud is driven by three elements: pressure, opportunity, and rationalization. Pressure motivates individuals to commit fraud due to financial demands or performance expectations. Opportunity emerges when internal control systems fail to prevent unethical conduct. Rationalization allows perpetrators to justify their fraudulent actions as acceptable. This framework has been widely used to explain fraudulent financial reporting behavior in public companies (Cressey, 1953; Dorminey et al., 2012).

External pressure reflects the financial burden faced by companies from creditors and external stakeholders. Companies with high debt levels often face strong pressure to maintain favorable financial performance in order to satisfy debt covenants and secure future financing. According to Fraud Triangle Theory, financial pressure can motivate management to manipulate accounting information. Under Agency Theory, managers may intentionally distort financial statements to avoid negative reactions from creditors. Previous studies found that leverage significantly increases the probability of financial statement fraud (Skousen et al., 2009; Ruankaew, 2016; Lastanti et al., 2022). This issue may become more severe in emerging markets such as Indonesia, where governance quality and external monitoring mechanisms are still developing. Under these conditions, highly leveraged firms may experience stronger incentives to manipulate financial reports in order to maintain creditor confidence and market reputation.

**H1:** External pressure positively affects financial statement fraud.

Financial targets represent internal pressure imposed on management to achieve expected earnings performance. Earnings per Share (EPS) is often used by investors to evaluate company profitability, making it a sensitive performance indicator. High earnings targets may create incentives for managers to manipulate reported profits when actual performance falls below expectations. Fraud Triangle Theory explains that internal pressure can encourage fraudulent reporting behavior. Empirical studies also show that aggressive financial targets are associated with higher fraud risk (Annisykurlillah, 2016; Husmawati et al., 2017; Septriani & Handayani, 2023).

**H2:** Financial targets positively affect financial statement fraud.

Opportunity to commit fraud tends to increase when monitoring mechanisms are weak. Independent commissioners play an important role in strengthening corporate governance because they provide objective supervision over management decisions. Agency Theory suggests that effective monitoring can reduce information asymmetry and managerial opportunism. A higher proportion of independent commissioners is expected to reduce opportunities for financial statement manipulation. Prior research found that board independence significantly reduces fraud occurrence (Boyle et al., 2015; Mackevičius & Giriūnas, 2013; Suryanto et al., 2022). In emerging capital markets, the effectiveness of corporate governance mechanisms largely depends on the quality of board independence and regulatory enforcement. Independent commissioners are therefore expected to play an important role in reducing managerial opportunism and limiting opportunities for fraudulent reporting.

**H3:** Independent commissioners negatively affect financial statement fraud.

Auditor turnover can be associated with rationalization in Fraud Triangle Theory. Management may replace auditors to reduce the probability of fraud detection or to avoid scrutiny from auditors who are familiar with previous reporting practices. Frequent auditor changes can therefore signal an attempt to conceal fraudulent activities. Several studies suggest that auditor turnover may be linked to fraudulent reporting, although findings remain mixed across countries (Schwartz & Soo, 1996; Rasha & Andrew, 2012; Putri et al., 2021). Although rationalization is fundamentally a psychological process that reflects how perpetrators justify unethical behavior, direct measurement of rationalization is difficult because internal cognitive motives cannot be easily observed in public data. Therefore, prior fraud studies frequently employ observable organizational indicators such as auditor turnover and director turnover as indirect proxies for rationalization. Auditor changes may indicate attempts by management to reduce audit scrutiny, while director changes may reflect organizational efforts to reconstruct corporate legitimacy following financial reporting concerns. Although these proxies may not fully capture the psychological dimension of rationalization, they remain relevant empirical indicators within archival fraud research (Skousen et al., 2009; Dorminey et al., 2012).

**H4:** Auditor turnover positively affects financial statement fraud.

Changes in company directors may indicate internal organizational instability or attempts to remove individuals who could expose fraudulent activities. Fraud perpetrators may rationalize fraudulent actions by replacing top management to create a new corporate image. Fraud Triangle Theory suggests that rationalization can support unethical behavior by allowing managers to justify manipulation. Previous studies found that director changes may serve as an early warning signal of financial reporting fraud (Skousen et al., 2009; Sasongko & Wijayantika, 2019; Rahman et al., 2023).

**H5:** Director turnover positively affects financial statement fraud.

## **METHODS**

This study employs a causal associative research design to examine the influence of Fraud Triangle variables on the likelihood of financial statement fraud among public companies listed on the Indonesia Stock Exchange (IDX). A causal associative design is appropriate because this study aims to identify the cause-and-effect relationship between external pressure, financial targets, internal control, and rationalization toward fraudulent financial reporting (Sekaran & Bougie, 2020). The population of this study consists of all public companies listed on the Indonesia Stock Exchange during the observation period. The sample was selected using a purposive sampling technique, which allows researchers to choose observations based on specific criteria relevant to the research objective (Hair et al., 2021). The sampling criteria were as follows:

1. Companies listed on the Indonesia Stock Exchange during the observation period.
2. Companies that published complete annual reports.
3. In this study, financial statement fraud refers to intentional misstatements, omissions, or violations in financial reporting that resulted in formal sanctions, administrative penalties, restatements, or disclosure violations issued by the Financial Services Authority (OJK). Fraud firms were identified based on official OJK enforcement reports and public sanction announcements related to misleading financial reporting, delayed disclosure, accounting irregularities, or material misrepresentation in annual

financial statements.

4. Non-fraud companies selected from the same industry and fiscal period as matching samples.

Based on these criteria, the final sample consisted of 76 companies, comprising 38 fraud firms and 38 non-fraud firms. This sample size meets the minimum requirement for binary logistic regression because a minimum of 10 observations per independent variable is recommended to obtain stable parameter estimates. Since this study uses five predictor variables, the sample size is considered statistically adequate (Hosmer et al., 2013).

### Sampling Process

The sampling process was conducted in several stages. First, companies sanctioned by the Financial Services Authority for financial reporting violations were identified as fraud samples. Second, each fraud company was counted only once to avoid duplicate observations. Third, a matching non-fraud company was selected from the same industry sector and fiscal year to maintain comparability between groups. This matched-pair design helps reduce industry bias and improves the reliability of the comparative analysis (Field, 2022).

### Variable Measurement

The analysis uses a dichotomous model where the dependent variable, Financial Statement Fraud, is measured as a dummy variable (1 for companies that committed fraud, 0 for those that did not). The independent variables are structured around the Fraud Triangle theory:

1. Pressure: Divided into external pressure (measured by Debt to Total Assets) and internal financial targets (measured by Earnings per Share/EPS).
2. Opportunity: Measured by the composition of the board of commissioners.
3. Rationalization is proxied using two observable organizational indicators: auditor turnover and director turnover. Auditor turnover is measured using a dummy variable equal to 1 if the company changed its external auditor during the observation period and 0 otherwise. Director turnover is measured using a dummy variable equal to 1 if there was a change in the board of directors and 0 otherwise.

To process this data, the study utilizes a Dichotomous Response Model solved through Binary Logistic Regression. This technique is specifically designed to predict group membership—in this case, categorizing companies into fraud or non-fraud groups. Logistic regression was chosen due to its high flexibility:

1. It does not require the independent variables to be normally distributed, linear, or have equal variance.
2. It can easily handle a mixture of continuous, discrete, and dichotomous independent variables.
3. It is highly effective when the relationship between the dependent and independent variables is expected to be nonlinear.

In general, the logistic regression model can be expressed in the following equation:

$$Y_i = \frac{e^u}{1+e^u}$$

Where  $Y_i$  is the estimated probability with 4 cases, and  $u$  is the ordinary regression equation.

$$U: \alpha + \beta_1 DTA + \beta_2 EPS + \beta_3 KI + \beta_4 PA + \beta_4 PD + e_i$$

Description:

$Y_i$  Financial Statement Fraud. This variable is measured using a dummy variable, where a value of 1 is given to companies that commit financial statement fraud, while a value of 0 is given to companies that do not engage in financial statement fraud

- DTA External Pressure Variable proxied by Debt to Total Assets  
 EPS Internal Pressure Variable in the form of Financial Targets, proxied by EPS  
 KI Internal Oversight Variable proxied by Independent Commissioners  
 PA Rationalization Variable proxied by Auditor Replacement  
 PD Variable Rationalization Proximately by Board of Directors Replacement

### Data Analysis Technique

Data were analyzed using several statistical procedures.

#### 1. Descriptive Statistics

Descriptive statistics were used to summarize the characteristics of research variables through: minimum value, maximum value, mean, standard deviation. These statistics provide an overview of the distribution of each variable before hypothesis testing (Field, 2022).

#### 2. Multicollinearity Test

Although logistic regression does not require classical assumptions in the same way as linear regression, multicollinearity among independent variables must be examined. Variance Inflation Factor (VIF) values below 10 indicate no multicollinearity problem (Hair et al., 2021).

#### 3. Hosmer and Lemeshow Test

The Hosmer–Lemeshow test is used to evaluate model fit. A significance value greater than 0.05 indicates that the model fits the observed data adequately (Hosmer et al., 2013). Hypotheses:

H0: the model fits the data

H1: the model does not fit the data

#### 4. Overall Model Fit

Overall model fit is assessed using: -2 Log Likelihood, Nagelkerke R Square, Omnibus Test of Model Coefficients. A lower -2 Log Likelihood and significant omnibus test indicate that the model explains the dependent variable better than the null model.

#### 5. Classification Accuracy

The classification matrix is used to evaluate the model's ability to correctly classify fraud and non-fraud firms. A higher percentage indicates better predictive performance.

#### 6. Hypothesis Testing.

The significance of each independent variable is tested using the Wald test. Hypotheses are accepted when: significance value  $\leq 0.05$  and coefficient direction matches the predicted hypothesis. This test determines whether each Fraud Triangle variable significantly influences financial statement fraud.

## RESULTS AND DISCUSSION

### Descriptive Statistics

Descriptive statistics were used to provide an overview of the characteristics of the research variables before hypothesis testing was conducted. The results of the descriptive analysis are presented in Table 1.

**Table 1.** Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Financial Statement Fraud	76	0.00	1.00	0.50	0.503
Debt to Total Assets (DTA)	76	-4.23	13.97	0.53	1.94
Earnings per Share (EPS)	76	-12.54	2.21	-0.95	1.56

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Independent Commissioners (IC)	76	0.00	1.00	0.48	0.18
Auditor Change (AC)	76	0.00	1.00	0.29	0.46
Director Change (DC)	76	0.00	1.00	0.30	0.46

Table 1 shows that the dependent variable, financial statement fraud, has a mean value of 0.50, indicating a balanced sample consisting of 38 fraud firms and 38 non-fraud firms. The average Debt to Total Assets ratio is 0.53, suggesting that, on average, sampled companies financed 53 percent of their assets through liabilities. Meanwhile, the average proportion of independent commissioners is 48 percent, indicating that most companies have nearly complied with corporate governance requirements regarding board independence (OJK, 2024). The EPS variable shows a mean value of -0.95 with a standard deviation of 1.56, indicating substantial variation in earnings performance across firms. This variation suggests that some companies experienced financial difficulties during the observation period, which may create internal pressure for management. The average values of auditor change and director change indicate that only a minority of firms replaced auditors or directors during the observation period.

### Multicollinearity Test

Before conducting logistic regression, multicollinearity among independent variables was tested using Variance Inflation Factor (VIF). The results are shown in Table 2.

**Table 2.** Multicollinearity Test

Variable	Tolerance	VIF
TA	0.812	1.231
EPS	0.765	1.307
IC	0.844	1.185
AC	0.901	1.110
DC	0.886	1.129

All VIF values are below 10, indicating that multicollinearity is not present in the regression model. Therefore, the independent variables can be included simultaneously in the logistic regression analysis (Hair et al., 2021).

### Goodness of Fit Test

#### Hosmer and Lemeshow Test

The suitability of the logistic regression model was evaluated using the Hosmer and Lemeshow test.

**Table 3.** Hosmer and Lemeshow Test

Chi-Square	Sig.
6.742	0.572

The significance value of 0.572 is greater than 0.05, indicating that the logistic regression model fits the observed data. This means the model is appropriate for explaining the probability of financial statement fraud (Hosmer et al., 2013).

### Overall Model Fit

**Table 4.** Overall Model Fit

Indicator	Value
-2 Log Likelihood	71.264
Nagelkerke R Square	0.463
Classification Accuracy	78.9 %

The Nagelkerke R Square value of 0.463 indicates that 46.3 percent of the variation in financial statement fraud can be explained by the independent variables. The remaining 53.7 percent may be explained by other factors outside the model. The classification accuracy of 78.9 percent indicates that the model has relatively good predictive ability.

### Hypothesis Testing

The results of the binary logistic regression analysis are presented in Table 5.

**Table 5.** Logistic Regression Results

Variable	Coefficient	Sig.	Decision
DTA	0.842	0.011	Supported
EPS	0.517	0.030	Supported
IC	-2.136	0.016	Supported
AC	0.341	0.434	Not Supported
DC	0.298	0.443	Not Supported

### Discussion

The findings should also be interpreted within the context of Indonesia as an emerging capital market, where governance quality and monitoring effectiveness may vary substantially across firms. In such environments, financial pressure and weak oversight mechanisms may create stronger incentives for fraudulent financial reporting. External pressure has a positive and significant effect on financial statement fraud. The positive coefficient indicates that companies with higher debt levels are more likely to manipulate financial statements. This finding supports Fraud Triangle Theory, which explains that financial pressure can motivate managers to commit fraud. Companies with substantial debt obligations may experience pressure to maintain favorable financial conditions in order to avoid violating debt agreements. This result is consistent with previous studies that found leverage increases fraud risk (Skousen et al., 2009; Lastanti et al., 2022).

Financial targets also show a positive and significant effect on financial statement fraud. Higher EPS targets increase managerial pressure to report favorable earnings performance. Under Agency Theory, managers may prioritize personal incentives such as bonuses or reputation over shareholder interests. When performance targets become difficult to achieve, management may manipulate accounting numbers to meet expectations. This finding supports previous research that found aggressive earnings targets can trigger fraudulent reporting behavior (Husmawati et al., 2017; Septriani & Handayani, 2023).

Independent commissioners have a negative and significant effect on financial statement fraud. This means stronger board independence reduces the likelihood of fraud. Agency Theory explains that independent commissioners improve oversight and reduce managerial opportunism. Effective monitoring limits opportunities for manipulation and strengthens financial reporting quality. This finding supports earlier studies showing that board independence is an important governance mechanism for fraud prevention (Boyle et al., 2015; Suryanto et al., 2022).

Auditor change does not significantly affect financial statement fraud. Although Fraud Triangle Theory suggests that changing auditors may help management conceal fraud, the

result indicates that auditor turnover is not a strong predictor in this sample. One possible explanation is that auditor changes may occur due to regulatory rotation requirements rather than fraudulent motives. This finding is consistent with several studies that reported inconsistent evidence regarding auditor turnover and fraud detection (Putri et al., 2021).

Director change also does not significantly affect financial statement fraud. This suggests that management replacement alone cannot explain fraudulent reporting behavior. Director changes may occur as part of normal corporate restructuring rather than as a response to fraudulent activities. Rationalization is a psychological dimension of fraud that may be difficult to capture through observable proxies. Similar findings were reported by previous studies that found director turnover was not consistently associated with fraud (Rahman et al., 2023).

## **CONCLUSION, SUGGESTION AND CONTRIBUTIONS**

This study examined the determinants of financial statement fraud among public companies listed on the Indonesia Stock Exchange by applying the Fraud Triangle Theory. The findings indicate that external pressure, proxied by Debt to Total Assets, and internal pressure, proxied by Earnings per Share, have a positive and significant effect on the likelihood of financial statement fraud. These findings indicate that companies experiencing greater financial pressure are more likely to manipulate financial reports in order to maintain financial stability and meet stakeholder expectations. The results also show that independent commissioners, as a proxy for internal control, have a significant negative effect on financial statement fraud. These findings highlight the importance of strengthening corporate governance quality and regulatory monitoring within emerging capital markets such as Indonesia.

This finding confirms that stronger board independence can reduce opportunities for management to engage in fraudulent reporting. In contrast, auditor change and director change, as proxies for rationalization, do not significantly influence financial statement fraud. This suggests that rationalization may be more difficult to capture through observable organizational changes. Overall, this study confirms that pressure and opportunity remain the most influential dimensions of the Fraud Triangle in explaining financial statement fraud within Indonesian public companies. These findings strengthen the relevance of Fraud Triangle Theory in the context of emerging capital markets.

### **Theoretical contribution**

This study contributes to the accounting and fraud literature in several ways. First, it extends the empirical application of the Fraud Triangle Theory by demonstrating that not all dimensions contribute equally to financial statement fraud. Specifically, pressure and opportunity were found to be stronger predictors than rationalization. Second, this study enriches Agency Theory by showing that conflicts between management and shareholders become more severe when firms face financial pressure and weak internal monitoring. Third, the use of a matched fraud and non-fraud sample provides stronger comparative evidence than many previous studies that only examined general listed firms.

### **Practical Contribution**

The findings of this study provide important practical implications for several stakeholders. First, investors should pay closer attention to indicators such as excessive leverage, aggressive earnings targets, and weak board independence, as these factors may serve as early warning signals of financial statement fraud. By identifying these warning signs at an early stage, investors can make more informed decisions and reduce potential investment risks.

Second, financial regulators may strengthen their monitoring of firms with high leverage, abnormal earnings pressure, and weak corporate governance structures.

More focused supervision on these companies can help detect potential fraudulent reporting earlier and enhance the overall transparency of the capital market. Finally, public companies should improve the effectiveness of independent commissioners, strengthen internal control systems, and reduce excessive financial pressure by maintaining healthier capital structures. Implementing these measures can minimize the risk of fraudulent financial reporting while also improving investor trust and market confidence.

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