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Article

Hexagon Fraud: Detection of Fraudulent Financial Reporting in State-Owned Enterprises Indonesia

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Abstract: This study aims to detect fraudulent financial reporting using hexagon fraud analysis, including seven factors: financial stability, external pressures, ineffective monitoring, auditor changes, change in director, arrogance, and collusion. The subject of this research is a public company consolidated audit report of state-owned enterprises. The existence of conflicting results, the phenomenon of fraudulent financial reporting, and limited research using the hexagon of fraud theory prompted this research to examine the factors that influence fraudulent financial reporting. The sample was selected using a sampling technique, with the criteria of state-owned enterprises listed on the Indonesia Stock Exchange in 2016–2020. The method used is quantitative, and the analytical method used is logistic regression analysis. The sampling technique used was purposeful sampling, so the number of samples was 125. The results of this study indicate that financial stability and external pressures have a positive effect on fraudulent financial reporting. However, ineffective monitoring, auditor changes, change in director, arrogance, and collusion do not affect fraudulent financial reporting.

Keywords: financial stability; external pressures; ineffective monitoring; arrogance; collusion



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1. Introduction

According to the [Association of Certified Fraud Examiners \(ACFE\) Indonesia \(2020\)](#) survey data, 70% of fraud in Indonesia is corruption. Fraud is an unlawful activity; fraud in this business usually occurs in financial statements, frequently referred to as financial statement fraud. According to the [Association of Certified Fraud Examiners \(ACFE\) Indonesia \(2020\)](#), Indonesia is ranked 85th out of 180 countries and based on Survey results, it is assumed that there is a budget deviation of 2%. Meanwhile, the 2019 ACFE survey results showed financial fraud of 6.7%, resulting in a loss of IDR 2,260,000,000 or 9.2%. This indicates that fraudulent financial reporting increases every year (Association of Certified Fraud Examiners (ACFE) Indonesia 2020). [Association of Certified Fraud Examiners \(ACFE\) Indonesia \(2020\)](#) shows that the most common frauds in Indonesia are corruption, with a rate of 70 with 167 cases, abuse of state/property, and business ownership with a rate of 21 and a total of 167 points. There were nine percent fraudulent financial reporting that caused losses with 22 cases.

[Association of Certified Fraud Examiners \(ACFE\) Indonesia \(2020\)](#) also shows that the government is the organization/institution most disadvantaged by fraud, with 8.5%. In second place is State-Owned Enterprises at 31.8 billion, followed by private companies at 15.1% and institutions/non-profit 2.9% and the last one is others by 1.7%. The test results of the Financial Services Authority (OJK), the Supreme Audit Agency (BPK), and the Indonesia Stock Exchange (IDX) show that State-Owned Enterprises including PT Garuda Indonesia are indicated to have committed fraudulent financial reporting. This makes PT Garuda Indonesia asked to improve its balance sheet, which lost \$2. Billion in 2018. This pressured

PT Garuda Indonesia to improve its balance sheet, which lost USD 2 billion in 2018. Another case occurred in a state-owned company, PT. Waskita Karya Tbk. In this case, the Corruption Eradication Commission examined Jasa Marga Director Desi Arryani and Finance Director PT Wiskita Kary as witnesses to resolve the issue. In 2018, the media was very busy covering the oldest and largest public insurance company in Indonesia, PT Asuransi Jiwasraya, as Jiwasraya did not pay insurance claims obtained in the amount of Rp. 802 billion in October and reached Rp. 12. billion in December 2019 ([Keuangan.kontan.go.id](https://keuangan.kontan.go.id) 2020). This happened as Jiwasraya bought the second and third shares at the end of the period to “beautify” the company’s balance sheet, often referred to as a change of clothes. Of course, there is a role for accountants who often manipulate Jiwasraya’s financial statements. Based on BPK’s findings, Jiwasraya had invested in local shares, which at the end of the year experienced a significant price increase, then resold the stakes in January next year. One of the four major accounting firms, namely Pricewaterhouse Coopers, One of the four major accounting firms, namely Pricewaterhouse Coopers, Jiwasraya’s 2017 financial statements are not reported in accordance with reality. Jiwasraya only recognized simi-lar futures contract obligations of Rp 3876.6 trillion, which should have been Rp 6.0 billion. Jiwasraya only recognized similar futures contract obligations of Rp 3876.6 trillion, which should have been Rp 6.0 billion. PwC also adjusted its retained earnings of IDR 2 trillion to IDR 28 billion (bbc.com 2019).

The increasing cases of fraudulent financial reporting encourage researchers to continue to develop fraud theories. [Vousinas \(2019\)](#) developed a new fraud detection model called the fraud hexagon theory. This study uses seven variables to describe each component of the cheat hexagon. Pressure is represented by financial stability and external pressure; the opportunity is meant by ineffective monitoring. The auditor characterizes rationalization in change; change in director defines capability, arrogance/ego is represented by CEO duality, and collusion is represented by political affiliation. Previous research used pentagon fraud indicators, so researchers used hexagon fraud to add collusion variables. [Vousinas \(2019\)](#) developed the theory from the National Technical University of Athens from developing the Pentagon Theory (SCORE), which includes Stimulus, Capability, Opportunity, Rationalization, and Ego. The model then updates and adapts the theory of existing fraud cases by adding collusion. The most recent fraud model is SCORE Stimulus, Capability, Collusion, Opportunity, Rationalization, and Ego. This study aims to detect fraudulent financial reporting using hexagon fraud analysis, including seven factors: financial stability, external pressures, ineffective monitoring, auditor changes, change in director, arrogance, and collusion. This research uses this new theory as, over time, the theory of fraud will also develop. The hexagon theory is an evolution of the pentagon theory, which is considered unable to perfect the factors that can influence the occurrence of fraud.

Several research findings on the factors that influence financial statement fraud show inconsistent results. Based on the research results, [Sari et al. \(2020a, 2020b\)](#) showed that the financial stability and auditor in change had a significant positive effect on fraudulent financial reporting. Furthermore, [Ruankaew \(2016\)](#) indicates that the pressure of personal financial needs, industrial nature, arrogance, and collusion impact fraudulent financial reporting. [Apriliana and Agustina \(2017\)](#) showed capacity, external pressure, and ineffective monitoring can detect fraudulent financial reporting. Research by [Evana et al. \(2019\)](#) and [Situngkir and Triyanto \(2020\)](#) concluded that external pressures and audits affect fraudulent financial reporting, while auditors in change, directors in changes, and arrogance do not. [Pamungkas and Utomo \(2018\)](#) show that financial stability, institutional ownership, financial objectives, ineffective monitoring, mayoral changes, and director changes do not affect fraudulent financial reporting. However, liquidity, external auditor quality, and arrogance do have an influence. [Evana et al. \(2019\)](#) conclude that leverage affects fraudulent financial reporting. The research results by [Rahmatika et al. \(2019\)](#) suggest financial stability, external pressure, financial goals, capacity, ineffective monitoring, and rationalization do not affect fraudulent financial reporting.

The novelty of this study, in addition to collusive variables, also contributes to understanding which factors can affect fraudulent financial reporting. The factors that influence fraud have been demonstrated in various fraud detection models initiated [Cressey \(1953\)](#), one of the founders, with a fundamental approach, called the fraud triangle theory. However, based on its development, the fraud-detection model has been developed into a new fraud model, namely the Hexagon fraud model introduced by [Vousinas \(2019\)](#), developing the Fraud Pentagon ([Horwath 2012](#)), which consists of five factors causing fraud in six aspects, namely: pressure, opportunity, rationalization, capability, and ego, to which [Vousinas \(2019\)](#) added the element of collusion. No research on the causes of fraud with the Hexagon fraud model by [Vousinas \(2019\)](#) has been carried out empirically. This study aims to analyze the effect of all the factors of the Hexagon Fraud model to detect fraudulent financial reporting. Companies with fraudulent financial reporting will lead to a decrease in public confidence, as the financial statements become unreliable as a valuable source of information to assess the company's prospects. Thus, it is crucial to detect and prevent fraud based on the financial statements issued by the company.

The rest of this paper is divided into four sections: the literature review is outlined in Section 2. Section 3 presents the methodology, data, and describes the variables. Next, Section 4 shows the results and discussion. The conclusion is given in the last part.

2. Literature Review

2.1. Hexagon Theory

The Fraud Hexagon Theory proposed by [Vousinas \(2019\)](#) from the National Technical University of Athens, derived from the Pentecostal Theory (SCORE), includes Stimulus (pressure), Capacity (capability), Opportunity, Rationalization, and Ego. Thus, [Vousinas \(2019\)](#) updated and refined the theory by adding collusion, later becoming SCORE. Pressure is one of the reasons someone commits fraud. The method includes lifestyle, economic needs, and other financial and non-financial problems. Competence is a person's ability to take advantage of the surrounding circumstances that allow him to commit fraud ([Vousinas 2019](#)). Collusion is a secret agreement between two or more people to deceive someone or deceive a third party ([Vousinas 2019](#)). Opportunity can be an impetus for someone to commit fraud. This opportunity arises due to weak monitoring and abuse of power ([Lastanti 2020](#)). Rationalization encourages someone to commit fraud or can manifest in people in a state of stress that makes the party feel that fraud is a natural act. Ego is an attitude that one is superior to the authority and rights they have, and the company's policies do not apply to their virtues ([Vousinas 2019](#)).

Hexagon Fraud is a rolling theory that goes deeper into the triggers of fraud. The Triangle of Fraud proposed by [Cressey \(1953\)](#) is the basis of the Hexagon Fraud model. The Fraud Triangle explains why people commit fraud; in the fraud triangle, fraud begins due to three conditions or circumstances: pressure, competence, and rationality. The Triangle fraud theory was reorganized into the diamond fraud theory proposed by [Wolfe and Hermanson \(2004\)](#), adding one more factor that triggers fraud, namely opportunity. Arrogance as a factor continues to trigger fraudulent behavior. Based on the fraud mentioned above theory, which includes the fraud triangle, the fraud diamond, and the fraud pentagram, the Hexagon fraud theory emerges as a reproducible theory in fraud activation. Fraud Hexagon, developed by [Vousinas \(2019\)](#), adds collusion as one of the fraud triggers.

2.2. Fraudulent Financial Reporting

Fraudulent financial reporting is the presentation of financial statements that contain material misstatements that are detrimental to users of financial statements ([Ghozali et al. 2019](#)). Losses caused by fraudulent actions can be financial or non-financial. False financial statements reduce the reliability of financial information, leading users of financial statements to make poor decisions. According to [Lou and Wang \(2011\)](#), there are several ways to create false financial information, such as manipulating, falsifying, or altering supporting

documents and accounting records to prepare financial statements, omission, error, or intentional obstruction of transactions, events, or information leading to the presentation of financial statements. Here, fraudsters deliberately abuse guidelines regarding rating amounts, disclosures, or presentation methods.

2.3. Hypothesis Development

2.3.1. Effect of Financial Stability on Fraudulent Financial Reporting

Financial stability is a description or degree of economic stability in a company. Users of financial statements will have more confidence in companies with stable financial charts. Therefore, the company must have the excellent financial stability to have this trust. If the company's status is in a growth phase below the industry average, it will encourage company management to report company performance. According to [Henry et al. \(2011\)](#), lobbying or encouraging management to commit fraudulent financial reporting of corporate assets occurs when a company's financial stability is threatened by economic conditions, industry, or other circumstances. This is to ensure that the company's performance is always considered good by users of financial statements. Financial stability is believed to have the potential to cause cases of fraudulent financial reporting in the company. This condition occurs when a business experiences difficulties in financial stability due to poor business performance, which pressures management to take action to manipulate the balance sheet. [Akbar \(2017\)](#); [Apriliana and Agustina \(2017\)](#); [Irwandi et al. \(2019\)](#); and [Rahmatika et al. \(2019\)](#) found that fraudulent financial reporting of companies is affected by financial stability. Financial stability describes the financial condition of a business in a stable condition, which becomes a benchmark for assessing the performance of a business. If the economic situation is unstable, management will face a lot of pressure, as asset management and fund management are not optimal. Auditing Standards Statement (SAS) No. 99 explains that when the financial situation is unstable due to the company's operations, the company's economic and industrial conditions will put pressure on management.

Hypothesis 1 (H1). *Financial stability has a positive effect on Fraudulent Financial Reporting.*

2.3.2. Effect of External Pressures on Fraudulent Financial Reporting

One situation that illustrates external pressure is when there is significant pressure to obtain funds to support operations, and the financial situation is perceived as favorable for external users. External pressure is measured by the leverage ratio, namely the total debt to total assets. If the value of the company's leverage ratio is high, it means that the company is in debt. The company runs the risk of not paying its debts, which puts pressure on management ([Hung et al. 2019](#)). External pressure is measured by the leverage ratio, which compares total liabilities to total assets. This ratio helps us to assess the company's ability to repay loans. If the company has a high percentage, it has high debt, from which business credit risk is also high. This is supported by the research of ([Husmawati et al. 2017](#); [Evana et al. 2019](#)). They argue that the higher the leverage ratio in the company, the greater the possibility of fraudulent financial reporting, as it can cause management to want to commit fraud. Research by [Apriliana and Agustina \(2017\)](#); [Evana et al. \(2019\)](#); and [Shi et al. \(2017\)](#) uses the leverage ratio as a tool to measure external pressure so that external pressure has a positive effect on the potential for fraudulent financial reporting.

External pressure is when management is under pressure to meet the expectations of third parties or parties outside the company ([Manurung and Hardika 2015](#)). Leadership is often under pressure due to the need for additional external funding to compete ([Skousen et al. 2009](#)). The free cash flow ratio influences external pressure as external capital requirements relate to operating and investment activities. In a study conducted by [Situngkir and Triyanto \(2020\)](#), external forces negatively affect financial fraud. According to SAS. External pressure is when the company's management is subject to external pressure exerted by the party to fulfill its expectations. Demand is one of the expectations that confront management in a situation where third-party rights are exercised, where management

must raise additional capital or additional debt. In the studies of [Lou and Wang \(2011\)](#), increased leverage indicates a growing desire to violate loan covenants. It means a firm's inability to raise capital through limited borrowing. This research is supported by [Evana et al. \(2019\)](#), who show that higher corporate leverage ratios allow management to make fraudulent financial reporting.

Hypothesis 2 (H2). *External pressure has a positive effect on fraudulent financial reporting.*

2.3.3. Effect of Ineffective Monitoring on Fraudulent Financial Reporting

Fraudulent acts can arise by chance caused by weak company monitoring ([Nanda et al. 2019](#)). Management is closely related to the Board of Commissioners, as they can oversee the company's running. Independent auditors are attracted from outside parties, increasing monitoring effectiveness to prevent fraudulent financial reporting ([Sari et al. 2020b](#)). [Husmawati et al. \(2017\)](#) show that ineffective monitoring negatively affects fraudulent financial reporting. However, managers do not always exercise their authority correctly; inadequate management creates opportunities for managers to commit fraudulent financial reporting. The less effective the level of monitoring, the greater the potential for fraudulent financial reporting.

Ineffective monitoring is the absence of effective monitoring within a company or a supervisory unit to monitor the company's performance. This can create opportunities for management and employees to commit fraudulent acts due to poor monitoring. According to [Rae and Subramaniam \(2008\)](#), weak internal controls, lack of discipline, poor access to information, lack of audit mechanisms, and apathy are opportunities that lead to fraud. [Situngkir and Triyanto \(2020\)](#) showed that the higher the proportion of independent auditors in a company, the greater the possibility of financial fraud. The case of someone committing fraud may arise from a lack of control over fraud prevention and detection. An effective monitoring system is needed to limit the likelihood of someone committing fraud. The existence of differences in interests between the agent and the principal causes agency problems and the need for agency monitoring. The position of the statutory audit committee consists of those who do not have relatives or friends in the appointed company so that the companies can improve internal control. [Situngkir and Triyanto's \(2020\)](#) research shows the higher the percentage of independent auditors in a company, the greater the company's monitoring, and the greater control negatively affects the likelihood of reporting fraud.

Hypothesis 3 (H3). *Ineffective monitoring has a positive effect on fraudulent financial reporting.*

2.3.4. Effect of Changes in Auditor on Fraudulent Financial Reporting

This research that the auditor changes are due to fraudulent financial reporting. The higher the rate of change in auditors, the greater the possibility of fraudulent financial reporting. Rationalization is an effort to find justification for the fraudulent acts committed. One of the strengths of rationalization is changing auditors. Changes in the auditor of a company can be an effort to remove traces of fraud procedures detected by the previous auditor. Companies' changes in auditors can create increased conflicts of interest between agents and principals and lead to adverse selection problems caused by asymmetric information ([Dung and Tuan 2019](#)). Fraudsters can use the balance between the two parties to commit fraud. Rationalization can encourage fraudulent financial reporting as fraudsters view their actions as fair and reasonable. [Nanda et al. \(2019\)](#) show that budget embezzlement is caused by auditor turnover. The company believes that a change of auditors can eliminate the traces of the previous auditor's findings.

This tendency encourages companies to change auditors to cover up fraud within the company. [Sari et al. \(2020a, 2020b\)](#), show that financial reporting fraud can be associated with a change in auditor. Auditors are one of the essential controllers of fraudulent financial reporting. Auditors are also a source of information where companies commit fraud. Modifications made to auditors, usually by a business, indicate that the industry

could be involved in fraud. The company does this to minimize the possibility of detecting fraudulent financial reporting. A company can change auditors to reduce the latter's ability to see fraudulent financial reporting and manipulation of the budget (Lou and Wang 2011). With the change of the company's auditors, it is understood that the new auditors overlook fraudulent activities; therefore, to facilitate the company's operations, the company is trying to change the auditor from time to time and control manipulative actions.

Hypothesis 4 (H4). *Changes in auditors have a positive effect on fraudulent financial reporting.*

2.3.5. Effect of Change in Director on Fraudulent Financial Reporting

Competence is an individual's attitudes and skills that play an essential role in the fraud. In addition to the possibility of someone acting fraudulently triggered by persuasion or pressure and rationalization, fraudsters must also recognize which doors are open as opportunities and take advantage of them by going through them, not once but several times. Differences in interests and information asymmetry between agents and principals will cause agency problems. However, a change in leadership can also identify a particular interest in changing previously offline channels, or can be detected to commit corporate fraud. In addition, a change of director will also cause a period of stress, which will open the door for potential fraudsters. Wolfe and Hermanson (2004); Sari et al. (2020a, 2020b) show that the higher the turnover of directors, the greater the index of financial reporting fraud. With the skills and abilities possessed, perpetrators will quickly take advantage of opportunities to commit fraud.

According to Wolfe and Hermanson (2004), a position in a company offers the possibility of fraudulent actions. Based on the statement, the function of the director, chief executive officer, and department head can be a determining factor in the occurrence of fraudulent actions. A change in director shows interest in several subjects to replace the previous director. A change in director is seen as fraud prevention or, in other words, the potential for fraudulent financial reporting. When a new director replaces a director of a company to improve the performance of the previous director, it indicates that the previous director's performance was poor and indicates suspected fraudulent financial reporting. A change in director is considered successful if the new director succeeds in preventing and reducing fraudulent financial reporting. However, if the new director fails, it is regarded as a failure, or worse (Wolfe and Hermanson 2004). The research of Situngkir and Triyanto (2020) reported that a change in directors to hide fraudulent behavior was carried out by former directors of a company. Indeed, new administrators need time to adapt to the company's financial information. Therefore, if there is a change in director, it will be difficult to detect fraud committed by the previous administration.

Hypothesis 5 (H5). *Changes in director have a positive effect on fraudulent financial reporting.*

2.3.6. Effect of Arrogance on Fraudulent Financial Reporting

Pride is the ego's attitude towards the full image. The number of photos seen in the financial statements is often a tactic for the CEO to maintain their status and leadership (Evana et al. 2019). Apriliana and Agustina (2017) shows that many CEO photos included in the company's annual report exhibit a very arrogant attitude from the company's CEO. A very arrogant attitude can lead to the possibility of fraud due to arrogance. Additionally, due to the supposed superiority of the Chief Executive Officer, he considers any internal control not personally relevant to him due to his status and position. Due to the increasing number of CEO photos featured in financial reports, the CEO will be perceived as increasingly arrogant. The cause is the desire of the CEO to show the strata he has in the company so that increasingly known. Due to his status and position, the CEO is considered to pass all company regulations and internal controls. Ramantha (2020) showed a positive influence between CEO photo frequency on fraudulent financial reporting.

Hypothesis 6 (H6). *Arrogance has a positive effect on fraudulent financial reporting.*

2.3.7. Effect of Collusion on Fraudulent Financial Reporting

Collusion is a deceptive practice carried out by two or more people who work together to achieve a goal that only benefits them. The agreement reached by the parties usually involves the provision of certain items such as money, goods, or other means to facilitate their work. Collusion, of course, is also against the law as it does everything possible for personal gain. If there is collusion, the risk of fraud is more significant. Therefore, a higher level of collusion will affect the likelihood of fraud. The characteristics of conspiracy are divided into; (i) it provides support payments to company officials or employees to win tenders to purchase certain goods or services; and (ii) the existence of an intermediary in the purchase of goods or services. This has to do with governance to governance or governance to producers. The Hexagon Fraud Model was used to evolve the Pentagon Fraud Model to identify fraud clues where collusion plays a role in Fraudulent Financial Reporting (Vousinas 2019). Wijayani and Ratmono's (2020) research shows that collusion positively affects the possibility of fraud. According to Vousinas (2019), collusion refers to a deceptive or strict arrangement between two or more people. One party acts against the other for an adverse purpose, defrauding one-third of their rights. The Hexagon model of fraud should be used as an evolution of the fraud pentagon to identify better clues to deception. Collusion plays a vital role in Fraudulent Financial Reporting (Vousinas 2019).

Collusion refers to a fraudulent agreement between two or more people, with one party bringing action against the other for some nefarious purpose, such as to defraud a third party of his or her rights (Vousinas 2019). The parties involved in collusion are employees and outside parties such as politicians or the government. Cooperation between companies and the government will benefit companies, making it easier for the government to relieve financial difficulties. This partnership also makes it easier for companies to access support to improve business performance and value. Yusrianti et al.'s (2020) research shows that working with government projects can influence financial fraud. The company's collaboration with government projects increases its efforts to play a role in growth projects to establish good business performance.

Hypothesis 7 (H7). *Collusion has a positive effect on Fraudulent Financial Reporting.*

3. Methodology

The design in this research is explanatory research. The research report examines the effect of financial stability, external pressures, ineffective monitoring, changes in auditor, change in director, arrogance, and collusion by potentially fraudulent financial reporting. The research was conducted using documentation, namely by processing the data obtained from the company's financial statements downloaded on the IDX's official website, especially state-owned companies (BUMN) during 2016–2020. This study's quantitative data analysis used SPSS (Statistical Package for Social Science) software version 25. In this study, logistic regression analysis was used, as the dependent variable was a dummy and did not require the assumption of data normality on the independent variables. The logistic regression model used to test the research hypothesis is as follows.

$$\text{Ln} \frac{\text{Fraud}}{1-\text{Fraud}} = \beta^0 + \beta_1 \text{TACHANGE} + \beta_2 \text{LEV} + \beta_3 \text{IND} + \beta_4 \text{AUDCHANGE} + \beta_5 \text{DCHANGE} + \beta_6 \text{CEOPIC} + \beta_7 \text{BOARD}$$

Furthermore, the dependent variable in this study is fraudulent financial reporting using the Beneish M-Score which consists of 8 financial ratio indices in Table 1, calculated by: $\text{M-Score} = -4.840 + (0.920 \times \text{DSRI}) + (0.528 \times \text{GMI}) + (0.404 \times \text{AQI}) + (0.892 \times \text{SGI}) + (0.115 \times \text{DEPI}) - (0.172 \times \text{SGAI}) - (0.327 \times \text{LVGI}) + (4.697 \times \text{TATA})$. If the Beneish M-Score calculation is obtained, the following results are possible: if the Beneish M-Score is less than -1.78 , the company is not indicated to have committed fraud in the financial statements or is classified as a non-manipulator company. If the Beneish M-Score is more than -1.78 , the company is shown to have committed fraud in the financial statements

or is classified as a manipulator company. Variable Operational Definitions in this study are presented in Table 2, the measurement of the independent variables uses the SCORE Model developed by Voutsinas (2019) to research the factors that cause financial statement fraud. The measurement of fraudulent financial statements is adopted from Beneish (1999), developed by Beneish (1999) as the latest and more detailed measurement using eight components obtained through information in financial statements. The measure of Beneish M-Score the formula receives each element:

Table 1. Dependent Variable Measurement.

No.	Ratio	Proxy	Formula
1	DSRI	Days Sales in Receivable	$\frac{(\text{receivables } t / \text{sales } t)}{(\text{receivables } - 1 / \text{sales } - 1)}$
2	GMT	Gross Margin Index	$\frac{(\text{sales } t - 1 - \text{COGS } t - 1 / \text{sales } t - 1)}{(\text{sales } t - \text{COGS } t / \text{sales } t)}$
3	AQI	Asset Quality Index	$\frac{(\text{Total Asset } t - \text{Current Asset } t + \text{PPE } t / \text{Total Asset } t)}{(\text{Total Asset } t - 1 - \text{Current Asset } t - 1 + \text{PPE } t - 1 / \text{Total Asset } t - 1)}$ PPE = Property, Plant, and Equipment
4	S	Sales Growth Index	$\text{Sales } t / \text{Sales } t - 1$
5	DELI	Depreciation Index	$\frac{(\text{Depreciation } t / \text{PPE } t + \text{Depreciation } t)}{(\text{Depreciation } t / \text{PPE } t + \text{Depreciation } t)}$ PPE = Property, Plant, and Equipment
6	SGAI	Sales General Administrative Index	$\frac{(\text{Sales and General Expenses } t / \text{sales } t)}{(\text{Sales and General Expenses } t - 1 / \text{sales } t - 1)}$
7	LVGI	Leverage Index	$\frac{(\text{Current Liability } t + \text{Long Term Debt } t / \text{Total Asset } t)}{(\text{Current Liability } t - 1 + \text{Long Term Debt } t - 1 / \text{Total Asset } t - 1)}$
8	TATA	Total Accrual to Total Asset	$\frac{(\text{NI from continuing } t - \text{Operation Cashflow } t)}{\text{Total Asset } t}$ NI = Net Income

Source: Beneish (1999).

Data and Methods

The population of this research is state-owned enterprises listed on the Indonesia Stock Exchange from 2016 to 2020. For the selection of samples, this study uses a purposive sampling technique. The criteria used in the sampling of this study are described as follows: state-owned enterprises publish their annual financial statements in rupiah; obtained companies not listed on the Indonesia Stock Exchange for 2016–2020 from www.IDX.co.id; and the company presents data consistent with the research variables and is published for 2016–2020. The data types and sources used in this study are secondary data. Secondary data is a source of research data obtained through records or evidence published publicly through an official website. The advantages of secondary data are that the research time is faster than primary data collection and the data obtained is more accurate as it uses various services. This research is quantitative. The sampling technique uses a targeted sample to generate a sample. The sampling criteria in this research are companies that are not listed on the IDX in a row for the 2016–2020 period. Furthermore, the data is incomplete for the 2016–2020 period, as shown in Table 3.

Table 2. Variable Operational Definition.

No.	Variable	Definition	Measurement	Scale	Source
1	Fraudulent Financial Reporting	Deliberate manipulation and material misstatement of financial statements	Beneish Model	Ratio	(Beneish 1999)
2	Financial Stability	Conditions that describe the company's financial stability	Changes in the total assets of the company for two years	Ratio	(Skousen et al. 2009)
3	External Pressure	Pressure from third parties on management	Total Liabilities/Total assets	Ratio	(Skousen et al. 2009)
4	Ineffective Monitoring	Ineffective company monitoring system	Number of Independent Commissioners/Total number of commissioners	Ratio	(Skousen et al. 2009)
5	Auditor in Change	Changes in auditors carried out by the company	The dummy variable is coded 1 if there is a change of auditor for the 2016–2020 period, and code 0 if the opposite occurs	Nominal	(Skousen et al. 2009)
6	Director in Change	Changes of directors made by the company	The dummy variable is coded 1 if there is a change in the Board of Directors for the 2016–2020 period, and 0 if otherwise.	Nominal	(Wolfe and Hermanson 2004)
7	Arrogance	Ego Attitude with Number of CEO photos shown in financial statements	Number of CEO photos attached to the annual financial statements	Nominal	(Horwath 2012)
8	Collusion	There is a collaboration or agreement that has the potential for fraud	Total Board of Independent Commissioners who have concurrent positions	Nominal	(Vousinas 2019)

Source: Data processed (2021).

Table 3. Sampling Criteria.

No.	Criteria	Total
1	State-owned enterprises listed on the Indonesia Stock Exchange (IDX) from 2016–2020	25
2	Companies that are not consecutively listed on the IDX for the 2016–2020 period	(0)
3	Incomplete data for the period 2016–2020	(0)
4	The company meets the criteria in the 2016–2020 period	25
5	Company observations available for three years (25×5)	125

Source: Data processed (2021).

4. Results and Discussion

4.1. Result

Based on Table 4, the mean value of the fraudulent financial reporting variable is 1.23, which means that as many as 4% of the sample indicate committing fraudulent financial reporting (1), and the remaining 96% of the sample do not (0). From the Classification (Table 5), we can analyze contingency should occur, or the frequency of expectations based on empirical data of the dependent variable. The number of samples with the dependent variable category of companies committing financial reporting fraud (code 1) is 5. Meanwhile, the companies that did not commit fraudulent financial reporting (code 0) numbered 120.

Table 4. Descriptive Statistics.

Variable	M-SCORE	Financial Stability	External Pressure	Ineffective Monitoring	Change in Auditor	Change in Director	Arrogance	Collusion
N	125	125	125	125	125	125	125	125
Mean	1.23	0.30	0.54	0.40	-	-	3.81	1.11
Std. Dev	0.20187	0.12784	0.13173	0.08333	-	-	1.011	0.670
Min	0	−0.12	0.25	0.23	0	0	0	0
Max	1	0.40	0.74	0.50	1	1	5	2

Source: Data processed (2021).

Table 5. Classification Test Results.

		Predicted		
		Fraud		
Observed		0.00	1.00	Percentage
Step 0	Fraud	120		100.0
		5		0.0
Overall Percentage				95.8

Source: Data processed (2021).

From Table 6 above, it is found that the significant number in the Hosmer and Lemeshow Test is $0.06 > \alpha = 5\% = 0.05$, so the research data model is classified as fit, or good, and feasible in explaining the research variables.

Table 6. Hosmer and Lemeshow Test.

Step	Chi-Square	df	Sig.
1	15.09	8	0.06

Source: Data processed (2021).

In addition, the feasibility test of the model can be seen from Table 7, the results of the Omnibus Test. The Chi-Square show value of 12.39 > Chi-Square table on the df (the number of independent variables 5), which is 11.07 or with a significance of 0.030 (<0.05), thus rejecting H0, which indicates that the addition of independent variables can have a natural effect on the model, or in other words, the model is declared fit. The logistic model in this study can be described in Table 8 and Correlations matrix in Table 9. as follows.

Table 7. Omnibus Tests of Model Coefficients.

		Chi-Square	df	Sig.
Step1	Step	12.39	5	0.030
	Block	12.39	5	0.030
	Model	12.39	5	0.030

Source: Data processed (2021).

Table 8. Logistics Regression.

	B	S.E	Wald	df	Sig	Exp (B)	95% CI. Lower	Upper
Step 1								
Financial Stability	−6.396	2.925	4.782	1	0.01	0.002	0.039	0.515
External Pressures	−7.191	10.048	0.512	1	0.04	0.001	0.65	268.450
Ineffective Monitoring	5.591	2.612	4.582	1	0.23	268.113	0.072	448.904
Changes in Auditor	−0.312	1.260	0.061	1	0.45	0.732	0.000	8.656
Change in Director	−0.255	0.239	1.135	1	0.27	0.775	0.000	1.329
Arrogance	0.846	0.867	0.537	1	0.02	0.842	0.089	1.323
Collusion	4.457	4.568	1.107	1	0.73	0.734	0.367	1.424
Constant	3.646	3.777	0.932	1	0.233	38.338		

Table 9. Correlations matrix.

	Constant	Financial Stability	External Pressures	Ineffective Monitoring	Change in Director	Changes in Auditor	Arrogance	Collusion
Step 1	Constant	1.000	−0.186	−0.927	0.050	−0.134	−0.092	−0.033
	Financial Stability	−0.186	1.000	−0.139	−0.726	0.019	−0.051	−0.041
	External Pressures	−0.927	−0.139	1.000	0.166	0.078	0.000	0.137
	Ineffective Monitoring	0.050	−0.726	0.166	1.000	0.137	−0.118	0.111
	Changes in Auditor	−0.134	0.019	0.078	0.137	1.000	−0.263	0.077
	Change in Director	−0.092	−0.051	0.000	−0.118	−0.263	1.000	0.089
	Arrogance	−0.033	−0.041	0.137	0.111	0.077	0.089	1.000
	Collusion	−0.157	0.027	0.039	0.073	−0.112	0.063	0.125

The logistic model in this study can be described as follows:

$$\text{Ln} \frac{\text{Fraud}}{1-\text{Fraud}} = 3.646 - 6.396 \text{ Financial Stability} - 7.191 \text{ External Pressures} + 5.591 \text{ Ineffective Monitoring} - 0.312 \text{ Changes in Auditor} - 0.255 \text{ Change in Director} + 0.846 \text{ Arrogance} + 4.457 \text{ Collusion}$$

4.2. Discussion

4.2.1. Financial Stability on Fraudulent Financial Reporting

The results of hypothesis testing in this study in Table 10 show that the first hypothesis (H1) is accepted. This suggests that financial stability, as measured by changes in total assets (CHANGE), positively and significantly affects fraudulent financial reporting. Indeed, if the value of a company's asset growth fluctuates, management will be under pressure to adjust the financial statements so that the company's asset growth looks stable. At that time, business people were always required to maintain the financial stability of their business. This pressure indicates the possibility of management fraud. One of the factors that trigger fraud that can be used by auditors is financial stability variables for hedge detection systems detect potential fraud in financial statements. Financial stability variables for hedge detection systems to detect potential fraud in financial statements, so investors should pay attention to asset value growth. The results of this study are in line with research conducted by (Apriliana and Agustina 2017; Evana et al. 2019; and Situngkir and Triyanto 2020). Therefore, the findings of this study can respond to agency theory which states that financial stability affects financial statement fraud, in line with the research conducted by Apriliana and Agustina (2017); Pamungkas and Utomo (2018); and Situngkir and Triyanto (2020), showing that financial stability has a positive and significant effect on fraudulent financial reporting. This shows a one-way relationship between a company's financial strength and the case of fraud on its balance sheet, meaning that the more stable a company's financial position is, the more likely it is to suffer.

Table 10. Summary of hypothesis testing results.

Hypothesis	Coefficient	p-Value	Result
Financial Stability → Fraudulent Financial Reporting	−6.396	0.01	Accepted
External Pressures → Fraudulent Financial Reporting	−7.191	0.04	Accepted
Ineffective Monitoring → Fraudulent Financial Reporting	5.591	0.23	Rejected
Changes in Auditor → Fraudulent Financial Reporting	−312	0.45	Rejected
Change in Director → Fraudulent Financial Reporting	−0.255	0.27	Rejected
Arrogance → Fraudulent Financial Reporting	0.846	0.02	Rejected
Collusion → Fraudulent Financial Reporting	4.457	0.73	Rejected

Source: Data processed (2021).

The sound financial condition of the company allows the company to create new elements that are beneficial to the company, such as creating unnecessary expense items that increase costs and consequently reduce profits. This finding is corroborated by previous research by Idie Widigdo (2013) which states that companies with higher total asset variables were more likely to produce fraudulent financial reporting to attract investors' attention and investor research.

4.2.2. External Pressure on Fraudulent Financial Reporting

The level of pressure from third parties, namely creditors, on management loans will generally lead to fraud. However, this is not always the case, as management may develop different plans and strategies to meet their obligations so that management does not feel pressured and has no influence to manipulate financial statements. Administration can issue stock to finance the business rather than take on debt that affects future payments and avoid the pressure that could lead to potential fraud. The results of this study are in line with research conducted by Pamungkas and Utomo 2018. The results of hypothesis testing in this study show that the second hypothesis (H2) is accepted. This indicates that external pressure, as measured by the leverage ratio (LEV), has a positive and significant effect on financial statement fraud. The results of this study are in line with the research of Evana et al. (2019) and Husmawati et al. (2017), which show that the higher the leverage

ratio, the more likely the company has fraudulent financial reporting. Based on the analysis results, external pressure as measured by leverage has a positive effect on the possibility of fraudulent financial reporting; this indicates that higher corporate leverage ratios allow management to make fraudulent financial reporting.

4.2.3. Ineffective Monitoring on Fraudulent Financial Reporting

Based on the results of hypothesis testing in this study, the third hypothesis (H3) was rejected. This shows that adequate monitoring, as measured by the percentage of independent trustees, does not affect fraudulent financial reporting. Therefore, this study does not support agency theory as a benchmark. This research is in line with the study of [Nanda et al. \(2019\)](#) and [Sari et al. \(2020b\)](#), who argue that effective control does not affect financial statement fraud. However, this is different from [Putri and Irwandi's \(2017\)](#) research, which suggests that effective management involves fraudulent financial reporting. According to the analysis results, ineffective monitoring does not affect the potential for fraudulent financial reporting. The results show that the less effective a company's independent auditor monitoring system is, the less likely it is that fraudulent financial reporting will occur, namely the possibility that the company has excellent monitoring or good corporate governance to avoid interference from other parties. This is supported by the phenomenon of financial reporting fraud cases determined by researchers. Independent boards of directors may refuse to sign their financial statements if they consider them to be fraudulent. This result is corroborated by the research of [Alves \(2014\)](#) that the possibility of an independent board of directors does not guarantee that the monitoring of the company will be better and more objective. This result is corroborated by the research of [Alves \(2014\)](#) that the possibility of an independent board of directors does not guarantee that the monitoring of the company will be better and more objective.

4.2.4. Change in Auditor on Fraudulent Financial Reporting

Based on the results of hypothesis testing in this study, the fourth hypothesis (H4) is rejected. This shows that auditor changes as measured by fictitious variables do not affect financial statement fraud. Therefore, this study does not support agency theory as a criterion. The auditor replacement was carried out to improve the external auditor's performance in the last period to enhance the quality of the company's financial statements so that investors were interested in investing in the company. This is by the Financial Services Authority Regulation No. 13/P.O.J.K.03/2017, where organizations conducting financial service activities are required to limit the use of audit services on the same annual economic history information for a maximum of three consecutive fiscal years. This study aligns with [Nanda et al.'s \(2019\)](#) research that shows that auditor income does not affect fraudulent financial reporting. The analysis of auditor changes does not affect the possibility of fraudulent financial reporting; this indicates that the company's auditor turnover does not encourage companies to commit fraudulent actions. The effect of auditor rotation on the potential for fraudulent financial reporting is due to the possibility of auditor rotation being carried out by a company based on the completion of predetermined contracts or other issues. Audit fees from companies improve corporate governance so that subsequent audit fees are not too high. Of course, it is not about changing the company's auditors to commit fraud; the change of auditors was caused by dissatisfaction with the previous auditor's performance.

4.2.5. Changes in Direction on Fraudulent Financial Reporting

Based on the results of hypothesis testing in this study, the fifth hypothesis (H5) was rejected. This shows that the change in directors as measured by fictitious variables does not affect fraudulent financial reporting. Therefore, this study does not support agency theory as a criterion. This study does not support the agency theory, which states differences in interests between agents and principals. Differences in interests mean that management as an agent changes directors for personal gain. The results showed that the change in

directors did not affect balance sheet fraud. The reason may be that the company changes directors to replace more capable directors, working more optimally than the previous period's directors to improve and strengthen the company's performance. Good company performance will encourage investors to invest in the business. This study is in line with the research of [Evana et al. \(2019\)](#); [Nanda et al. \(2019\)](#); and [Situngkir and Triyanto \(2020\)](#), which stated that the change in directors did not affect fraudulent financial reporting. However, this study is different from the research of [Pamungkas and Utomo \(2018\)](#) and [Aviantara \(2021\)](#), who argue that the change in directors affects fraudulent financial reporting.

4.2.6. Arrogance on Fraudulent Financial Reporting

Testing the arrogance variable using the frequent proxy change on CEO picture in two regression models proves that frequent change of CEO picture does not affect fraudulent financial reporting, so H6 was rejected. Therefore, we can conclude that the frequency of the CEO's photo appearing in the annual report is not a form of arrogance and power of the president, director, or CEO of the company, but is limited to introducing the president, director, or the current CEO to the public. How the company has performed, and the achievements that have been obtained are a form of proof of the running of the company's operations according to its vision and mission. The results of this study are supported by [Apriliana and Agustina \(2017\)](#), who said that CEO photos displayed by the company could not show the arrogance of the CEO, as there are companies that do not display CEO photos or, if they do, it is only for the need for an introduction to the CEO profile.

4.2.7. Collusion on Fraudulent Financial Reporting

Based on the analysis results, collusion, measured by several independent board mandates, does not affect the likelihood of fraudulent financial reporting; this indicates that multiple board positions do not make them self-reliant. Good corporate governance has been implemented, however each independent member is relatively independent. This is corroborated by the fact that the competition for the work of independent commissioners covered in this study does not violate Law no. 19 of 2003 concerning Public Companies and not violating the Financial Services Authority (OJK). Competitive positions are also regulated by one criterion, former civil servants or former soldiers.

5. Conclusions

Many cases of fraudulent financial reporting to date have prompted researchers to investigate the factors that drive people to commit fraud. However, the results of previous studies have shown mixed results. This study aims to examine the factors that influence fraudulent financial reporting by using seven variables to describe each component of the fraud hexagon, such as financial stability, external pressures, ineffective monitoring, changes in auditor, change in director, arrogance, and collusion. The results of this study indicate that financial stability and external pressures have a positive effect on fraudulent financial reporting. However, ineffective monitoring, auditor changes, director change, arrogance, and collusion do not affect fraudulent financial reporting. Consider management as the person in charge and agents in protecting the principal. Management is also tasked with providing information and is expected to know more about the factors that can cause fraud and the impact on financial statements to reduce errors in making decisions.

As a tool that is expected to provide information to investors in assessing and analyzing their investments in a company, investors should be more careful and detect the possibility of fraud in the company's financial reporting. So, as to reduce risk and be able to consider the suitable investment. Research subjects are limited to state-owned enterprises in Indonesia. However, the result of this study can be generalized to companies from other countries. Therefore, the sample is more minor, and we can choose different topics to enrich the research results. The use of variables in this study is still limited to measuring the potential for fraudulent financial reporting. Other researchers have suggested that collusion can be measured using a legally proven sample for novelty in this study. Measuring a

legally established selection is necessary to determine whether one should use financial information fraudulently or otherwise. Measures to enrich the measurement of constitutive variables and enrich research results should be developed.

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