THE LIKELIHOOD OF FRAUD FROM THE FRAUD HEXAGON PERSPECTIVE: EVIDENCE FROM INDONESIA

Dio Alfarago[1], Muhammad Syukur[2,*], and Azas Mabrur[3]

Abstract

Fraudulence can cause financial loss and investor mistrust. Fraud is not only unethical but also a punishable sin. As the impact is enormous, it is crucial to examine what factors motivate or impact a company to commit fraud. Literature has archived several models to explain elements of fraudulent activities, such as the Fraud Triangle, Fraud Diamond, and Fraud Pentagon. Georgios L. Vousinas introduced the fraud hexagon in 2019, the latest model exhibiting six factors that motivate companies to commit fraud. This model consists of stimulus (pressure), capability, collusion, opportunity, rationalization, and ego (arrogance). This research aims to examine the effect of the fraud hexagon elements on the likelihood of fraud. Seventy-six manufacturing firms listed on the Indonesia Stock Exchange during 2015-2019 were chosen to be included in the sample. This study uses the Beneish M-Score model to separate companies likely to commit fraud. Logistic regression analysis was then used to test the hypothesis. The findings indicate that stimulus impacts the likelihood of fraud.

Keywords: Beneish M-Score; Financial Statement Fraud; Fraud Hexagon; Indonesia

JEL Clasifications: K40; K42

1. INTRODUCTION

Maximizing profit is a crucial goal for a business as it can in turn maximize the firm's value and shareholders' wealth (Fitri, Syukur, Majid, Farhana, & Hatta, 2022; Widyaningsih, Gunardi, Rossi, & Rahmawati, 2017). A company's value increases in direct proportion to its profitability (Chen & Chen, 2011). According to Istaiteyeh and Milhem (2022) and Seissian, Gharios, and Awad (2018), profit is considered a sign of development and improvement and indicates the company's sustainability and future competitiveness. A steady business with strong profitability can generate adequate funds for sustainable development to draw interest and investment from both domestic and foreign investors (Nguyen & Nguyen, 2020). To maximize profit, companies could do inappropriate things leading to fraudulent actions. The Association of Certified Fraud Examiners (ACFE) classifies fraud into three categories: corruption, asset misappropriation, and financial statement fraud, the so-called 'fraud tree' (ACFE, 2020). Criminals engage in more than one of the three major types of fraud. ACFE (2020) stated that corruption brings 43% of total fraud cases with a median loss of $200,000. In contrast,

---

[1] Dio Alfarago is currently working as a staff in the Directorate General of Taxes, Indonesia Ministry of Finance. He obtained a bachelor's degree in Accounting from the Polytechnic of State Finance STAN (PKN STAN), Indonesia.

[2,*] Muhammad Syukur (corresponding author) is currently working as an Accounting lecturer at the School of Management, Mae Fah Luang University. He obtained a master's degree in Logistics and Supply Chain Management from Mae Fah Luang University, Thailand. He is a PhD. candidate in the Faculty of Accounting, Universiti Teknologi MARA (Malaysia). Email: msyukurmail@gmail.com

[3] Azas Mabrur is currently working as a lecturer in the department of Accounting, Polytechnic of State Finance STAN (PKN STAN). He obtained a master's degree in Accounting from Universitas Indonesia.

asset misappropriation becomes the most common form of fraud, accounting for 86% of cases, but with the lowest median loss of $100,000. Financial statement fraud (FSF) is the type of fraud with a minor number of cases (10%), but it has the greatest impact as it causes a median loss of up to $954,000. According to ACFE (2020), financial statement fraud is a scheme where employees deliberately cause false statements or omit material information in the organization's financial reports. For example, a company understates reported expenses, records fictitious revenues, or artificially inflates reported assets.

Fraudulent behavior happens across industries but commonly appears in the banking and manufacturing industries. Figure 1 shows the number of fraud cases in various industries during the period 2014-2019. Most cases occurred in the banking industry with a total of 1,070 cases (19.34%), followed by government institutions with 600 cases (10.88%), and the manufacturing industry with 570 cases (10.30%). Out of these three industries, the loss in the manufacturing industry is the largest, with a $177,000 median loss. Therefore, the manufacturing industry is worth exploring.

Most fraud cases in Indonesia were committed by big companies and important sectors. In 2002, Indonesia's Kimia Farma manipulated its financial statements by inflating the net profit of IDR132 billion rupiahs to mislead the public (Hidayat, 2015). In 2019, the fraud case of Indonesia's Tiga Pilar Sejahtera Food was revealed. The company overstated its fixed assets, inventory, and accounts receivable, by IDR4 trillion, sales by IDR662 billion, and EBITDA by IDR329 billion (Rika, 2019). The company also provided inadequate disclosure of transactions with affiliated parties (Binsasi, 2019). Besides this, there was a flow of funds worth IDR1.78 trillion in various schemes from the PT Tiga Pilar Sejahtera Food group to parties suspected of affiliating with the previous management (Rika, 2019). In the same year, another fraud case was the 'window dressing' conducted by PT Asuransi Jiwasraya (Persero), an Indonesian state-owned insurance company. After completing an audit of the 2017 financial statement, the financial statements required correcting from a profit of IDR2.4 trillion down to only IDR428 billion (Makkl, 2020). The government lost IDR16.8 trillion due to this case (Nurhidayat, 2020).
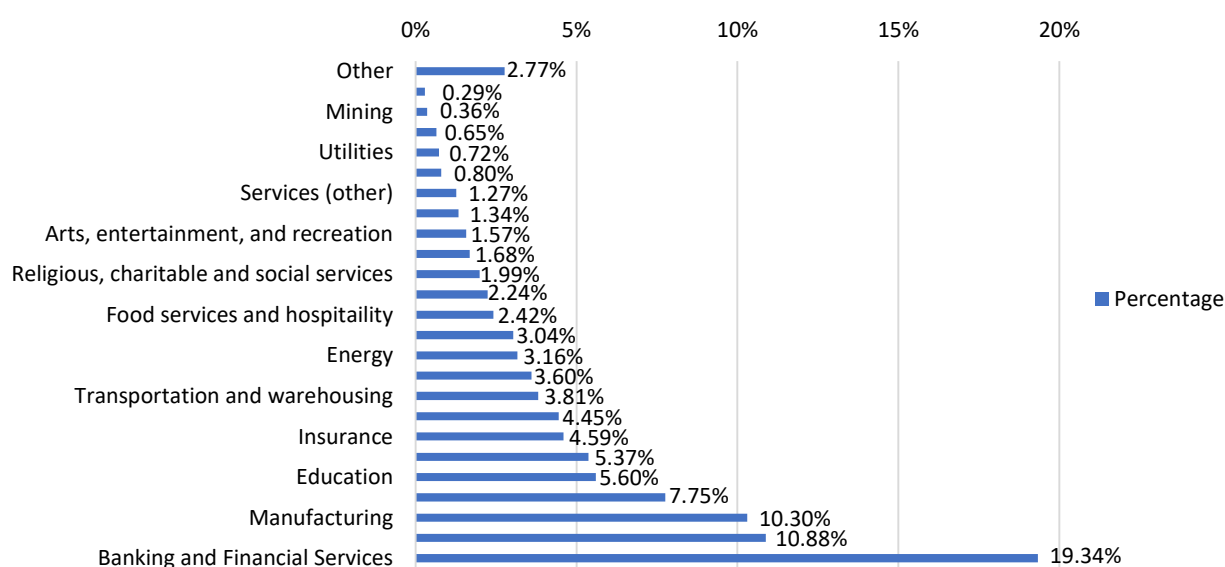
Figure 1 Fraud Cases Based on Industry Type
Source: ACFE's Report to the Nations (2020)

There are some theories and models that aim to explain how fraud happens. Cressey (1953) first introduced the Fraud Triangle theory with three elements: Pressure, Opportunity, and Rationalization. Wolfe and Hermanson's Fraud Diamond theory was introduced in 2004, with the additional element of Capability (Wolfe & Hermanson, 2004). The model was then upgraded to the Fraud Pentagon theory, with Arrogance as the new element (Marks, 2011). The latest model was introduced by Vousinas (2019) and is known as the Fraud Hexagon theory. There are six elements in the Fraud Hexagon, namely Stimulus (Pressure), Capability, Collusion, Opportunity, Rationalization, and Ego (Arrogance).

Researchers have been testing the influence of the fraud elements on the likelihood of fraudulence. Skousen, Smith, and Wright (2009) employed the Fraud Triangle in research, finding that all variables, except rationalization, significantly affected the likelihood of fraudulence. Ozcelik (2020) researched fraud cases from the perspective of the Fraud Diamond theory and found that all variables, except pressure and opportunity, affect the likelihood of fraud. Ratmono, Darsono, and Cahyonowati (2020) researched the Fraud Pentagon theory. They concluded that only the financial target (pressure) and CEO Narcissism (ego) significantly influence the fraudulence of the financial statement. The significance of each element of fraud likelihood depends on empirical examination and investigation. This is why empirical research should be carried out even though fraud is impossible to eliminate. The likelihood of fraudulence can be minimized by understanding the causes of fraud and taking proactive measures against it (Kazimean, Said, Nia, & Vakilifard, 2018; Rahman, Sulaiman, Fadel, & Kazemian, 2016).

The Fraud Hexagon is the latest model, covering the old elements from previous models and additional elements. This study aims to determine if the elements in the Fraud Hexagon model are influencing factors of fraud likelihood in the manufacturing industry, which constitutes 10% of global fraud cases. Thus, the significance of the fraud hexagon elements on the fraud likelihood of manufacturing companies will be tested in the context of Indonesia. The Beneish M-Score model will be used to detect companies likely to commit fraud in the Indonesian context.

2. LITERATURE REVIEW

Financial statement fraud is an act of deliberately misrepresenting a company's financial information by eliminating the number of disclosures in the financial statements to deceive users of financial statements (Ratmono, Darsono, & Cahyonowati, 2020). The American Institute of Certified Public Accountants (Statement on Auditing Standards No. 82) and the USA Government Accountability Office (2004) have defined two types of financial misstatements (Liou, 2008). The first is management fraud, which is caused by deliberate misrepresentation or omission of amounts or disclosures in financial statements. This is the kind of fraud in which management deliberately deceives others. Earnings will always be the aim of financial fraud as opportunity seekers try to establish a pattern by manipulating income levels (Abbas, 2017). The earnings may even be manipulated to make a sound financial statement (Beneish, 1999; Noor, Sanusia, Heang, Iskandar, & Isa, 2015) such as the case of Enron. The second type is caused by the misappropriation of assets and is called employee fraud or defalcation. Employees might abuse their positions to steal from or divert employer assets because they are aware of the "flaws" in the control system and take advantage of them (Othman & Ameer, 2022). Employees' motivation to commit fraud comes from a variety of reasons, including a lack of knowledge about fraudulent behavior, opportunity to commit fraud, lifestyle, and financial pressures (Omar, Nawawi, & Puteh Salin, 2016).

Fraud theory can explain why fraud phenomena occur. It can define what factors

contribute to fraudulent acts by categorizing the causes of fraud. The latest fraud theory is the Fraud Hexagon, introduced in 2019 by Georgios L. Vousinas (2019). It is also called the SCCORE Model, representing the elements in the model. The model is an upgraded version of previous models, namely the Fraud Triangle (Cressey, 1953), the Fraud Diamond (Wolfe & Hermanson, 2004), and the Fraud Pentagon (Marks, 2011). The elements of the Fraud Hexagon are shown in Figure 2.

Stimulus, called pressure in other models, triggers cheating (Romney & Steinbart, 2015). Capability refers to someone's ability to infiltrate a company's internal control, formulate complex fraud strategies, and control the social environment to his benefit (Antawirya, Putri, Wirajaya, Suaryana, & Suprasto, 2019; Bire, Sauw, & Maria, 2019; Nuryani, Satrawan, Gorda, & Martini, 2018). Collusion is a fraudulent agreement between two or more people against another party for malicious purposes (Vousinas, 2019). Opportunities can occur because of ineffective controls or governance systems that allow individuals to commit fraud in the organization (Omukaga, 2020). Rationalization is the perpetrator's tendency to seek justification for his fraudulent acts. Ego, called arrogance in other models, refers to a behavior of superiority or greed in someone who thinks that internal control does not apply to him (Marks, 2012).

2. 1. Stimulus and Financial Statement Fraud

Stimulus (pressure) is a condition that generally encourages someone to commit fraudulent acts. High pressure received by the company often leads to an increase in fraud risk. Financial stability is a proxy to measure stimulus or pressure. Financial stability is the ability of a company not to experience financial crisis or risk (Allen & Wood, 2006). The rapid growth of a company is an important risk factor for the possibility of fraud (Bell & Carcello, 2000). Often, management becomes too pressured to impress investors by showing great asset changes due to its ability to make profits (Supri, Rura, & Pontoh, 2018). Therefore, management maintains its assets' value in stable condition by intentional misstatement.

$H_0 1$: Stimulus does not affect the likelihood of financial statement fraud.

$H_a 1$: Stimulus affects the likelihood of financial statement fraud.

2. 2. Capability and Financial Statement Fraud

Director change is a change in the structure of the existing board of directors in a company. A person's position or function in an organization may provide the ability to create or take advantage of fraud opportunities. Director substitution may attempt to
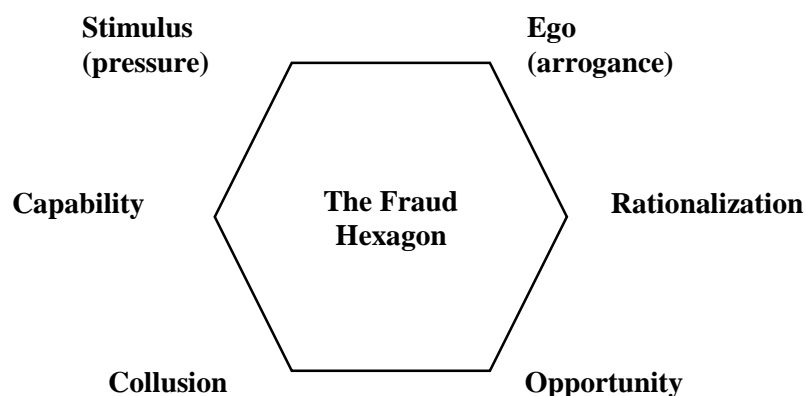
Figure 2 Fraud Hexagon Model (Vousinas, 2019)

remove a director considered aware of a company's fraudulent acts (Supri, Rura, & Pontoh, 2018). Therefore, changing directors can be deemed an attempt by management to commit fraud. Puspitha and Yasa (2018) found that changes to the board of directors can be used to predict financial statement fraud.

$H_0$2: Capability does not affect the likelihood of financial statement fraud.

H_a2: Capability affects the likelihood of financial statement fraud.

2. 3. Collusion and Financial Statement Fraud

Indonesian Law No. 28 of 1999 defines collusion as the cooperation among state administrators or the cooperation between state administrators and other parties in violating the law, which harms others, society, or the state. Collusion can be measured by project cooperation between a company and the government (Sari & Nugroho, 2020). Collusion can be seen in several situations including when there is involvement of cooperation between entrepreneurs and government authorities, or when there is strong government involvement in supporting a corporation (Nasution et al., 1999). One of the collusion characteristics is the bribes given to government administrators to win the procurement tenders of certain goods or services (Susandra & Hartina, 2017). The American Institute of Certified Public Accountants (AICPA) through the Auditing Standard (AS) 2401 has stated that fraud might be concealed through collusion among management, employees, or third parties. Once collusion exists among these parties, the fraud is difficult to stop.

Moreover, the Indonesia Competition Commission (ICC) stated that 70% of Indonesian fraud cases originate from government and private sector tenders. A tender winner is determined according to the orders of a local government, and usually, the tender is (personally and professionally) close to the officials (Bisri, 2015). Sari and Nugroho (2020) found that project

cooperation between a company and the government affects financial statement fraud.

$H_0$3: Collusion does not affect the likelihood of financial statement fraud.

H_a3: Collusion affects the likelihood of financial statement fraud.

2. 4. Opportunity and Financial Statement Fraud

Opportunity provides an invitation and a chance to fraudsters in committing fraud. Perpetrators can take such an opportunity if the action they commit has a small risk of being detected. With pressure and a push from management, the opportunity can increase stress levels, which will support employees and the company to participate in fraudulent activities (Aghghaleh, Iskandar, & Mohamed, 2014).

The opportunity of conducting fraud might arise from related party transactions (RPT). IAS 24 defines RPT as "… a transfer of resources, services, or obligations between related parties, regardless of whether a price is charged". The transaction cost of RPT is usually under the control of a company and may not reflect the fair bargaining between the parties involved (Suyanto, 2009). This kind of transaction generally has a greater risk of material misstatements because it is prone to manipulation by management (Lou & Wang, 2009). Research results by Chen and Elder (2008) and Suyanto (2009) show that transactions between related parties affect the likelihood of fraud.

$H_0$4: Opportunity does not affect the likelihood of financial statement fraud.

H_a4: Opportunity affects the likelihood of financial statement fraud.

2. 5. Rationalization and Financial Statement Fraud

Rationalization could arise because the perpetrator seeks justification for his actions (Cressey, 1953). According to Apriliana and Agustina (2017), changing auditors is a form of management rationalization in conducting fraud, as new auditors are required not to

disclose fraud committed in the previous period. The auditor's response to fraudulent financial statements is important and essential (Amaechi & Nnanyereugo, 2013). When companies substitute their auditors, audit failures and litigation immediately increase (Skousen, Smith, & Wright, 2009). For this reason, a change in auditor can be a measure of rationalization in conducting fraud. Auditor change refers to the change in public accounting firms carrying out auditing activities in a company. Companies having indications of fraud tend to change auditors more frequently (Fitri, Syukur, & Justisa, 2019). Research by Umar, Partahi, and Purba (2020) and Ozcelik (2020) has proven that auditor change affects the likelihood of fraud.

H_05: Rationalization does not affect the likelihood of financial statement fraud.

H_a5: Rationalization affects the likelihood of financial statement fraud.

2. 6.   Ego and Financial Statement Fraud

The CEO's picture can be used to measure the arrogance of a CEO (Yusof, Khair, & Simon, 2015). The photographs of the CEO and other management are usually taken for publicity purposes. However, a greater number of pictures represents narcissism and ego. This ego can lead to fraudulence as the upper management feels that they can change internal controls and company policies that are working against their wishes (Marks, 2012). Puspitha and Yasa (2018) and Yusof, Khair, and Simon (2015) found that the number of CEO's pictures impacts the likelihood of fraudulent financial reporting.

H_06: Ego does not affect the likelihood of financial statement fraud.

H_a6: Ego affects the likelihood of financial statement fraud.

3. RESEARCH METHODOLOGY

3. 1.   Data sampling

The population of this study consists of the 193 manufacturing companies listed on the Indonesia Stock Exchange (IDX) during 2015-2019. From these, a sample was selected using a purposive sampling method based on specific set criteria. The criteria were as shown in Table 1.

According to the selected results, there were 76 eligible companies which could be used as the research sample. Therefore, the total number of observation years in this study was 380 across the observation period of 2015 to 2019. During hypothesis testing, logistic regression analysis was used as the dependent variable in this study was categorical, namely a company with an indication of fraud or non-fraud. Both null hypotheses and alternative hypotheses were proposed in order to reject the null hypothesis.

3. 2.   Variable Operationalization and the Model

Dependent Variable

The Beneish's M-Score model can be used to detect financial fraud (Tarjo & Herawati, 2015). Financial statement fraud is taken as the dependent variable in this study.

The Beneish M-Score was used as it is known as an efficient model to detect

Table 1 Sampling Criteria

No	Criteria	Number of Companies
1	Manufacturing companies listed on IDX during 2015-2019	193
2	Companies that did not publish annual reports for the period	(60)
3	Companies that did not use IDR as the reporting currency during the period	(28)
4	Missing data	(29)
Sample size (per year)		76
Number of observations (76 x 5 years)		380

companies that tend to commit fraud on financial reports, to categorize companies that are likely/unlikely to commit fraud by detecting the earnings manipulation conducted by companies (Beneish, 1999; Halilbegovic, Celebic, Cero, Buljubasic, & Mekic, 2020). While fraud and earnings management have the same goal, fraud is not compliant with generally accepted financial principles (GAAP), whereas earnings management is compliant (Erickson, Hanlon, & Maydew, 2006). Financial statement fraud is defined following Healy and Wahlen's (1999) definition of earnings management: when managers manipulate financial reports to "either deceive some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that rely on reported accounting figures," they are committing financial statement fraud. In concurrence with research conducted by Perols and Lougee (2011), this study defines financial statement fraud as occurring when managers commit financial statement manipulation or manage earnings, taking into account that firms can manipulate financial statements using accounting procedures that are both within and outside of GAAP (or both).

Moreover, the M-Score can be used in the Indonesian context as it is also used in other developing countries as a financial statement fraud prediction tool, for example Bangladesh (Ahmed & Naima, 2016), Bosnia and Herzegovina (Halilbegovic, Celebic, Cero, Buljubasic, & Mekic, 2020), Malaysia (Aris, Mohd Arif, Othman, & Zain, 2015), and even China (Lu & Zhao, 2020). Empirically, the Beneish's M-Score model with an M-Score of greater than -2.22 means that the company (is likely to) manipulate its financial statements. Conversely, an M-Score less than -2.22 indicates that the company does not conduct manipulation. The Beneish M-Score calculation formula is as follows:

$$\text{M-Score} = -4.84 + 0.92*\text{DSRI} + 0.528*\text{GMI} + 0.404*\text{AQI} + 0.892*\text{SGI} + 0.115*\text{DEPI} - 0.172*\text{SGAI} + 4,679*\text{TATA} - 0.327*\text{LVGI}.$$

Note:
DSRI = Days' Sales in Receivable Index = $(\text{Receivable}_t/\text{Sales}_t) / (\text{Receivable}_{t-1}/\text{Sales}_{t-1})$; **GMI** = Gross Margin Index = $[(\text{Sales}_{t-1} - \text{COGS}_{t-1}) / \text{Sales}_{t-1}] / [(\text{Sales}_t - \text{COGS}_t) / \text{Sales}_t]$; **AQI** = Asset Quality Index = $[1 - (\text{Current Assets}_t + \text{PPE}_t) / \text{Total Assets}_t] / [1 - ((\text{Current Assets}_{t-1} + \text{PPE}_{t-1}) / \text{Total Assets}_{t-1})]$; **SGI** = Sales Growth Index = $\text{Sales}_t / \text{Sales}_{t-1}$; **DEPI** = Depreciation Index = $[\text{Depreciation}_{t-1} / (\text{PPE}_{t-1} + \text{Depreciation}_{t-1})] / [\text{Depreciation}_t / (\text{PPE}_t + \text{Depreciation}_t)]$; **SGAI** = Sales, General and Administrative Expenses Index = $(\text{SGA Expense}_t / \text{Sales}_t) / (\text{SGA Expense}_{t-1} / \text{Sales}_{t-1})$; **TATA** = Total Accruals to Total Assets = $(\text{Income from Operating}_t - \text{Cash Flow from Operating}_t) / \text{Total Assets}_t$; **LVGI** = Leverage Index = $[(\text{Current Liabilities}_t + \text{Long Term Debt}_t) / \text{Total Assets}_t] / [(\text{Current Liabilities}_{t-1} + \text{Long Term Debt}_{t-1}) / \text{Total Assets}_{t-1}]$.

Independent Variables

Elements in the Fraud Hexagon model require proxies to be measured. Stimulus (pressure) is proxied by financial stability. Users of financial statements have greater confidence in companies with solid financial charts (Achmad, Ghozali, & Pamungkas, 2022). Thus, financial distress might motivate management to commit unethical behavior. Consequently, companies must solve this issue to gain investors' trust and do whatever it takes to get their financial information to look healthy, including maintaining their assets to perform well. Therefore, management may maintain its assets' value in a stable condition by intentional misstatement. Skousen, Smith, & Wright (2009) demonstrated that the likelihood of a corporation engaging in acts of financial statement fraud increases as the ratio of the change in total assets increases.

Changing director is used as a proxy of capability. Director changes could indicate that the previous director has an unsatisfactory capability to improve performance and prevent fraudulence. Therefore, the changes in directors could indicate unsatisfactory performance and a high likelihood of fraudulence conducted by the previous director (Supri, Rura, and Pontoh, 2018).

Collusion is proxied by projects with the government. The government's cooperation on company projects can open up opportunities for fraud. The larger the scale of project collaboration, the bigger the company's financial income, making it more possible for companies to manipulate financial statements. Also, there are various benefits to a company from cooperation between the company and the government, such as greater ease in being bailed out when experiencing financial difficulties. Companies will not be reluctant to give bribery with the expectation of receiving benefits in the future. Public projects are prone to fraud and corruption (Locatelli, Mariani, Sainati, & Greco, 2017). Therefore, project cooperation between companies and the government might lead to fraudulent acts (Sari & Nugroho, 2020).

Related party transactions can be used to measure opportunity. Related party transactions are not necessarily illegal. However, they have the potential to undermine the business climate by creating conflicts of interest while favoring the hiring company's close allies. Since management can easily manipulate the company's

transactions, there is typically a greater danger of substantial misstatements (Lou & Wang, 2009). Hasnan, Rahman, and Mahenthiran (2013) found that related party transactions have a significant relationship with occurrences of fraudulence.

Fifth, rationalization is proxied by changing auditor. According to Apriliana and Agustina (2017), a change of auditor occurs because management does not want the previous auditor to discover the possibility of fraud having been committed. Thus, changing the auditor is one option executed. Companies that switch auditors tend to receive a qualified opinion (Chow & Rice, 1982). Accordingly, changing auditor might be seen as a possible indication of fraud (Skousen, Smith, & Wright, 2009).

The number of the CEO's pictures is used to measure ego. A fraudster is typically selfish, self-centered, and driven to succeed at all costs (Khamainy, Amalia, Cakranegara, & Indrawati, 2022). The amount of images in the financial accounts is frequently a strategy used by the CEO to uphold their position and authority (Evana, Metalia, Mirfazli, Georgieva, & Sastrodiharjo, 2019). A CEO who has a high status and position in their

Table 2 Variables and Measurement

Variable	Proxy	Indicators	Formula	Reference
Fraudulence		$Ln\left(\frac{Fraud}{1-Fraud}\right)$	1 = fraud firms; 0 = otherwise	
Stimulus	Financial Stability	Asset Change (ACHANGE)	(Total Assets$_t$ – Total Assets$_{t-1}$) / Total Assets$_t$	Skousen, Smith, and Wright (2009)
Capability	Director Change	DIRCHANGE	1 = Changing Director; 0 = otherwise	Supri, Rura, and Pontoh, (2018)
Collusion	Project with Governments	GOVTPROJECT	1 = Having projects with governments; 0 = otherwise	Sari and Nugroho (2020)
Opportunity	Related Party Transactions	Related party transactions (RPT)	Receivable of Related Parties / Total Receivable	Hasnan, Rahman, and Mahenthiran (2013)
Rationalisation	Auditor Change	AUDCHANGE	1 = Changing auditor; 0 = otherwise	Skousen, Smith, and Wright (2009)
Ego	Number of CEO's Picture	Total number of CEO's Pictures (CEOPIC)	Total number of CEO's images shown in the annual report	Yusof, Khair, and Simon (2015)

company tends not to want to lose that position. This arrogance can lead to fraudulence since the upper management feels that they can change internal controls and company policies that are working against their intensions (Marks, 2012). For this reason, being extremely conceited can increase the likelihood of fraud. According to Yusof, Khair, and Simon (2015), the number of pictures of the CEO can be a sign of financial statement fraud. Table 2 displays the details of the variables and measurements used in this paper.

Therefore, the proposed model for use in this research is as follows:

$$\text{Ln} \left(\frac{\text{Fraud}}{1 - \text{Fraud}} \right) = \beta_0 + \beta_1 \text{ACHANGE} +$$

$$\beta_2 \text{DIRCHANGE} + \beta_3 \text{GOVTPROJECT} +$$

$$\beta_4 \text{RPT} + \beta_5 \text{AUDCHANGE} + \beta_6 \text{CEOPIC}$$

4. RESULTS

4. 1. Descriptive Statistics Analysis

By employing the Beneish M-Score model, the companies were categorized into manipulatory (likely to commit fraud) and non-manipulatory (likely not to commit fraud) companies. An M-Score of less than -2.22 suggests that the company is not a manipulator. In contrast, an M-Score of greater than -2.22 suggests that it is likely a manipulator. Table 3 shows that the number of observation years is 380 observations. It was detected that only 54 observations were manipulatory. The remaining 85% of observations of statements (326 observations) were free from manipulation.

Table 4 shows the average value of each proxy. This table exhibits the difference between companies that were indicated to be likely to commit fraud and those that were not. It represents the descriptive statistics of all independent variables in this study. The manipulatory companies tend to be more stable (based on financial stability), have more cooperation with the government, more related-party transactions, and more frequent auditor changes. On top of that,manipulatory companies change their director less frequently and have a smaller number of CEO pictures.

4. 2. Classification Matrix Test

Using the M-Score model to measure the likelihood of fraud, 326 non-manipulatory and 54 manipulatory observations were detected. However, the model predicted differently. The classification matrix results in Table 5 display the model's accuracy against detection using the M-score.

Table 3 Frequency Distribution based on Fraud Category

Variable Name	Category	Indication	Frequency	Percentage
Financial Statement Fraud	0	Non-fraud	326	85.8%
	1	Fraud	54	14.2%
Total			**380**	**100%**

Table 4 The Results of the Descriptive Statistic Test

Proxy	Minimum		Maximum		Mean		Std. Deviation	
	Fraud	**Non-fraud**	**Fraud**	**Non-fraud**	**Fraud**	**Non-fraud**	**Fraud**	**Non-fraud**
ACHANGE	-0.44	-0.86	1.51	0.80	0.20	0.07	0.35	0.15
DIRCHANGE	0.00	0.00	1.00	1.00	0.37	0.46	0.49	0.50
GOVTPROJECT	0.00	0.00	1.00	1.00	0.19	0.18	0.40	0.39
RPT	0.00	0.00	1.42	1.98	0.33	0.27	0.36	0.33
AUDCHANGE	0.00	0.00	1.00	1.00	0.22	0.16	0.42	0.37
CEOPIC	0.00	0.00	8.00	22.00	2.57	2.97	1.84	2.67

Table 5 shows that the accuracy of the model was 87.1%. Of 326 observations diagnosed as non-fraudulent companies, 325 observations or 99.7%, were also predicted (by the model) as non-fraudulent companies. Furthermore, out of 54 observations diagnosed as committing fraud, six observations (11%) were predicted (by the model) as fraudulent companies. Therefore, the Classification Matrix test concluded that the model is 87.1% accurate against the Beneish M-Score model.

4. 3.   Regression Test

This research uses a logistic regression test for the hypothesis testing. The logistic regression test is suitable for a binary dependent variable. In this research, the dependent variable is the likelihood of fraudulence, codified as 1 for companies with fraudulence likelihood and 0 if otherwise. Determining whether a company indicated to have fraudulence likelihood (or not) is taken from the result of the M-Score model that has been run in the previous steps.

From the regression results shown in Table 6, it is observed that X1, X4, and X5 have positive signs of *Beta*. This result indicates that the likelihood of fraudulence is increased if there is a bigger change in assets, more related-party transactions, and more frequent auditor changes. The remaining variables, X2, X3, and X6, have a negative sign, indicating that the likelihood of fraudulence is smaller if companies have more frequent director changes, more projects with governments, and more CEO pictures. However, based on the *Sig.* column, it can be seen that only Achange_X1 has a value below 0.05, which means that asset change (measuring the stimulus) is the only independent variable significantly contributing to the likelihood of fraudulence, with a 95% significance level. With 19.465 *Exp(B),* The positive sign of Beta indicates that change in assets positively increases the likelihood of fraudulence. Relative to the previous year's assets, every dollar change in assets multiplies the probability of fraudulence indication in the company by 19.5.

5. DISCUSSION

This research used a 95% significance level to test the hypotheses. The null hypothesis was rejected if the significance

Table 5. The Results of the Matrix Classification Test

	Observed		Predicted Financial Statement Fraud		
			Non-fraud	Fraud	Percentage Correct
Step 1	Financial Statement Fraud (FFS)	Non-fraud	325	1	99.7
		Fraud	48	6	11.1
	Overall Percentage				87.1

Table 6 The Results of the Logistic Regression Model

		B	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(B)*
Step 1[a]	Achange_X1	2.969	.724	16.800	1	.000	19.465
	Dirchange_X2	-.432	.336	1.650	1	.199	.649
	Govtproject_X3	-.051	.436	.014	1	.907	.950
	RPT_X4	.708	.445	2.533	1	.112	2.029
	Audchange_X5	.201	.400	.251	1	.616	1.222
	CEOpic_X6	-.067	.071	.906	1	.341	.935
	Constant	-1.858	.643	8.355	1	.004	.156

a. Variable(s) entered on step 1: Achange_X1, Dirchange_X2, Govtproject_X3, RPT_X4, Audchange_X5, CEOpic_X6.

level (*Sig*.) was less than 0.05. Inversely, if the *Sig*. score was greater than 0.05, the null hypothesis would not be rejected. Table 7 summarizes the hypothesis testing results.

The variable of stimulus in this research uses financial stability as its proxy. Financial stability (measured by assets change) positively impacted *(coeff. = 2.969; sig.=0.000)* the likelihood of fraud. This result indicates that more financially stable companies are more likely to commit fraud. The result aligns with the research conducted by Supri, Rura, and Pontoh (2018) and Handoko and Natasya (2019). The company's financial stability can trigger management to commit fraudulent actions in financial reports so that the information presented remains attractive to investors, creditors, and others. When a company's growth is below its industry average, management will attempt to manipulate its reports to its prospect value (Loebbecke, Eining, & Willingham, 1989; Skousen, Smith, & Wright, 2009). Management has the tendency to be under pressure to alter financial statements to make the asset growth appear steady, which acts as a good signal for stakeholders. This can lead to fraudulent activity.

The result shows that capability, measured by a change of director (DIRCHANGE), does not impact the likelihood of fraud. Change of directors is a normal phenomenon where new directors are appointed due to the expiration of tenure (Rengganis, Sari, Budiasih, Wirajaya, & Suprasto, 2019). A director should be changed between three to five years from the date of appointment. Therefore, a new director must be recruited after the previous one is retired or has resigned. The board of directors' replacement or dismissal is

regulated in Indonesian Law No. 40 of 2007 concerning Limited Liability Companies (UUPT). Article 105 paragraph (1) states that the Board of Directors and the Board of Commissioners can be dismissed at any time based on the General Meeting of Shareholders' decision by stating the reasons.

From the regression result, it is also concluded that collusion (measured by joint projects with the government) has no significant effect on the likelihood of financial statement fraud. Project cooperation between a company and the government does not contribute to the likelihood of financial statement fraud as the existing project cooperation has no fraudulent purposes. Trust between partners is essential for business relationships to be successful (Schreier, Udomkit, & Ineichen, 2021). However, if a person in the government is conducting deceitful cooperation with the private sector, this individual will face social pressure and media coverage, in addition to legal punishment. Moreover, in Indonesia, independent bodies must audit companies and government departments. In this result, it was found that opportunity (proxied by related party transactions) does not affect the likelihood of fraud. Transactions with special parties in Indonesia are recognised and disclosed at the same level as those with other third parties. Transactions are carried out legally in accordance with generally accepted accounting principles. In this case, related-party transactions do not support fraudulence (Ratmono, Darsono, & Cahyonowati, 2020). The statistical tests in this study also show that rationalization does not affect the likelihood of fraud. There are several other reasons why companies change their auditors: (1) the business gains complexity and

Table 7 Conclusion of Hypothesis Testing Results

Tested relationship	Sig.	Conclusion
1. Stimulus and the likelihood of fraud	0.000	H_01 *rejected*
2. Capability and the likelihood of fraud	0.199	
3. Collusion and the likelihood of fraud	0.907	
4. Opportunity and the likelihood of fraud	0.112	H_02, H_03, H_04, H_05 and H_06 *not rejected*.
5. Rationalisation and the likelihood of fraud	0.616	
6. Ego and the likelihood of fraud	0.341	

requires different specific auditors (Nazri, Smith, & Ismail, 2012); or (2) companies change their auditors to comply with government regulations regarding auditor rotation. A Public Accounting Firm can provide service to the same client for six consecutive years, while a Public Accountant can provide service for three consecutive years at the most (the Regulation of Indonesian Minister of Finance No. 17/ PMK.01/2008 Article 3 paragraph (1). Companies complying with this regulation are not supporting fraud. This finding is in line with the research conducted by Triastuti, Rahayu, and Riana (2020) and Handoko and Natasya (2019).

The number of pictures of the CEO was the proxy of ego. In this study, it was found that ego does not affect the likelihood of fraud, in line with Maulidiana and Triandi (2020) and Anggraini and Suryani (2021). In this case, the average of three photos (according to Table 4) is not substantial to fraudulence likelihood. According to Antawirya, Putri, Wirajaya, Suaryana, and Suprasto (2019), CEO pictures are meant to introduce the company's leader to the public. Jin and Yeo (2011) mention that the positive reputation of the CEO plays a significant role in building ties with the diverse public and the company's success, promoting the mastermind behind the company's success. That is why, for example, CEO confidence (measured by the total sum of the CEO's picture width) could decrease the debt level (Ting, Azizan, & Kweh, 2015). Therefore, CEO photos on the annual report would significantly contribute to the company's success but not to the company's fraudulence likelihood, since CEOs, like other public figures, are expected to act appropriately in order to be a role model for society (Chumsakwinit & Laohavichien, 2021).

Out of all variables in the model, stimulus (measured by assets growth) was found to be the single variable which can predict the likelihood of fraud. Manufacturing firms typically have factories and use large-scale machines. They also have three inventories: raw materials, work-in-process

inventory, and finished inventory. Without good control, companies can have several pockets of assets that can be manipulated and made into a sound financial statement by providing good growth in assets (financially stable). Meanwhile, the other Fraud Hexagon components of Capability, Collusion, Opportunity, Rationalization, and Ego, were not found to contribute to fraud likelihood. This indication means that these elements do not significantly affect the likelihood of fraudulence in the given sample of manufacturing companies in Indonesia.

6. CONCLUSION

This empirical research was conducted to examine the effect of the Fraud Hexagon components (proxied by financial stability, director changes, project cooperation with the government, related party transactions, auditor change, and the number of CEO pictures) in detecting the likelihood of financial statement fraud in manufacturing companies listed on the Indonesia Stock Exchange (IDX) from 2015 to 2019. It was found that financial stability (measured by asset growth) has a significant effect on the likelihood of fraud. The greater asset growth leads to the probability of fraudulent financial statements. At the same time, changing director, projects with the government, related party transactions, changing auditor, and the number of pictures of the CEO did not contribute to the likelihood of fraud.

The Fraud Hexagon model was introduced by Vousinas in 2019. This study enriches the empirical literature on the latest fraud model in the Indonesian context. From this research, readers can understand that Collusion does not affect fraudulence likelihood in Indonesia's manufacturing companies since the industry does not participate in any project cooperation with governments. This study also highlights to practitioners and stakeholders the use of financial stability (assets growth) as a signaling tool for fraud likelihood. For example, stakeholders should analyze companies' asset growth while making

investment decisions to avoid the risk of losses incurred by fraudulent firms. For practitioners such as Indonesia's tax auditors, this paper can provide a new perspective that asset change is one of the crucial things related to fraud that should be examined to prove the fairness of financial statements and the company's tax compliance, especially for those companies that show an incredibly high growth of assets.

In this research Indonesia's manufacturing industry was chosen, with a sample of companies used in the study. Future research should expand this study to other industries susceptible to fraudulence, such as financial companies. The Dechow F-Score Model could also be used instead of the Beneish Model to detect the likelihood of fraud. Future research might contribute more to the research topic by modifying or employing more related proxies.

REFERENCES

Abbas, A. (2017). Earnings Fraud and Financial Stability. *Asia Pacific Fraud Journal*, 2(1), 117. https://doi.org/10.21532/apfj.001.17.02.01.010.

ACFE. (2020). Report To the Nations: 2020 Global Study on Occupational Fraud and Abuse. *ACFE Report*, 1–88. Retrieved from https://www.acfe.com/report-to-the-nations/2020/

Achmad, T., Ghozali, I., & Pamungkas, I. D. (2022). Hexagon Fraud: Detection of Fraudulent Financial Reporting in State-Owned Enterprises Indonesia. *Economies*, 10(1), 13. https://doi.org/10.3390/economies10010013.

Aghghaleh, S. F., Iskandar, T. M., & Mohamed, Z. M. (2014). Fraud Risk Factors of Fraud Triangle and the Likelihood of Fraud Occurrence: Evidence from Malaysia. *Information Management and Business Review*, 6(1), 1–7. https://doi.org/10.22610/imbr.v6i1.1095.

Ahmed, T., & Naima, J. (2016). Detection and analysis of probable earnings manipulation by firms in a developing country. *Asian Journal of Business and Accounting*, 9(1), 59–81.

Allen, W. A., & Wood, G. (2006). Defining and achieving financial stability. *Journal of Financial Stability*, 2(2), 152–172. https://doi.org/10.1016/j.jfs.2005.10.001.

Amaechi, E. P., & Nnanyereugo, E. V. (2013). Application of Computed Financial Ratios in Fraud Detection Modelling: A Study of Selected Banks in Nigeria. *Asian Economic and Financial Review*, 3(11), 1405–1418.

Anggraini, W. R., & Suryani, A. W. (2021). Fraudulent Financial Reporting through the Lens of the Fraud Pentagon Theory. *Jurnal Akuntansi Aktual*, 8(1), 1–12. https://doi.org/10.17977/um004v8i12021p1.

Antawirya, R. D. E. P., Putri, I. G. A. M. D., Wirajaya, I. G. A., Suaryana, I. G. N. A., & Suprasto, H. B. (2019). Application of Fraud Pentagon in Detecting Financial Statement Fraud. *International Research Journal of Management, IT and Social Sciences*, 6(5), 73–80. https://doi.org/10.21744/irjmis.v6n5.706.

Apriliana, S., & Agustina, L. (2017). The Analysis of Fraudulent Financial Reporting Determinant through Fraud Pentagon Approach. *Jurnal Dinamika Akuntansi*, 9(2), 154–165. https://doi.org/10.15294/jda.v7i1.4036.

Aris, N. A., Mohd Arif, S. M., Othman, R., & Zain, M. M. (2015). Fraudulent Financial Statement Detection Using Statistical Techniques: The Case of Small Medium Automotive Enterprise. *Journal of Applied Business Research (JABR)*, 31(4), 1469. https://doi.org/10.19030/jabr.v31i4.9330.

Bell, T. B., & Carcello, J. V. (2000). A decision aid for assessing the likelihood of fraudulent financial reporting. *Auditing: A Journal of Practice & Theory*, 19(1), 168–184. https://doi.org/10.2308/aud.2000.19.1.169.

Beneish, M. D. (1999). The Detection of

Earnings Manipulation. *Financial Analysts Journal*, *55*(5), 24–36. https://doi.org/10.2469/faj.v55.n5.2296

Binsasi, K. de R. (2019). Investor AISA: Kasus AISA adalah Skandal dalam Pasar Modal Indonesia. Retrieved February 28, 2021, from https://investasi.kontan.co.id/news/investor-aisa-kasus-aisa-adalah-skandal-dalam-pasar-modal-indonesia.

Bire, A. R., Sauw, H. M., & Maria. (2019). The Effect of Financial Literacy Towards Financial Inclusion Through Financial Training. *International Journal of Social Sciences and Humanities*, *3*(1), 186–192. https://doi.org/10.29332/ijssh.v3n1.280.

Bisri, M. (2015). 70 Persen Kasus di KPPU Terkait Kartel Tender di Daerah. Retrieved February 28, 2021, from https://nasional.tempo.co/read/719519/70-persen-kasus-di-kppu-terkait-kartel-tender-di-daerah/full&view=ok.

Chen, K. Y., & Elder, R. J. (2008). *Fraud Risk Factors and the Likelihood of Fraudulent Financial Reporting: Evidence from Statement on Auditing Standards No. 43 in Taiwan*. (43). Retrieved from https://www.researchgate.net/publication/228945894.

Chen, L.-J., & Chen, S.-Y. (2011). The Influence of Profitability on Firm Value with Capital Structure as the Mediator and Firm Size and Industry as Moderators. *Investment Management and Financial Innovations*, *8*(3), 121–129.

Chow, C. W., & Rice, S. J. (1982). Qualified Audit Opinions and Auditor Switching. *Accounting Review*, 326–335.

Chumsakwinit, S., & Laohavichien, T. (2021). Celebrity and Beliefs Affect Ethical Consumption Intentions. *ABAC Journal*, *41*(1), 183–208.

Cressey, D. R. (1953). *Other people's money; a study of the social psychology of embezzlement*. Free Press. Retrieved from https://psycnet.apa.org/record/1954-06293-000.

Erickson, M., Hanlon, M., & Maydew, E. L. (2006). Is There a Link between Executive Equity Incentives and Accounting Fraud? *Journal of Accounting Research*, *44*(1), 113–143. https://doi.org/10.1111/j.1475-679X.2006.00194.x.

Evana, E., Metalia, M., Mirfazli, E., Georgieva, D. V., & Sastrodiharjo, I. (2019). Business Ethics in Providing Financial Statements: The Testing of Fraud Pentagon Theory on the Manufacturing Sector in Indonesia. *Business Ethics and Leadership*, *3*(3), 68–77. https://doi.org/10.21272/bel.3(3).68-77.2019.

Fitri, F. A., Syukur, M., & Justisa, G. (2019). Do the Fraud Triangle Components Motivate Fraud in Indonesia? *Australasian Accounting, Business and Finance Journal*, *13*(4), 63–72. https://doi.org/10.14453/aabfj.v13i4.5.

Fitri, F. A., Syukur, M., Majid, M. S. A., Farhana, I. & Hatta, F. (2022). Do intellectual capital and financing matter for the profitability of the Islamic banking industry in Indonesia?', Int. J. Monetary Economics and Finance, Vol. 15, No. 3, pp.293–308. https://doi.org/10.1504/IJMEF.2022.10046805

Halilbegovic, S., Celebic, N., Cero, E., Buljubasic, E., & Mekic, A. (2020). Application of Beneish M-score model on small and medium enterprises in Federation of Bosnia and Herzegovina. *Eastern Journal of European Studies*, *11*(1), 146–163.

Handoko, B. L., & Natasya. (2019). Fraud diamond model for fraudulent financial statement detection. *International Journal of Recent Technology and Engineering*, *8*(3), 6865–6872. https://doi.org/10.35940/ijrte.C5838.098319.

Hasnan, S., Rahman, R. A., & Mahenthiran, S. (2013). Management Motive, Weak Governance, Earnings Management, and Fraudulent Financial Reporting: Malaysian Evidence. *Journal of*

International Accounting Research, *12*(1), 1–27. https://doi.org/10.2308/jiar-50353.

Healy, P. M., & Wahlen, J. M. (1999). A Review of the Earnings Management Literature and Its Implications for Standard Setting. *Accounting Horizons*, *13*(4), 365–383. https://doi.org/10.2308/acch.1999.13.4.365.

Hidayat, D. (2015). Kasus Kimia Farma (Etika Bisnis). Retrieved February 28, 2021, from https://www.kompasiana.com/www.bobotoh_pas20.com/5535b4d46ea8349b26da42eb/kasus-kimia-farma-etika-bisnis.

Istaiteyeh, R., & Milhem, M. M. (2022). Jordan'S Banks' Profitability: a Closer Look At Foreign and Domestic Banks. *ABAC Journal*, *42*(2), 320–347.

Jin, C. H., & Yeo, H. C. (2011). Satisfaction, corporate credibility, CEO reputation and leadership effects on public relationships. *Journal of Targeting, Measurement and Analysis for Marketing*, *19*(2), 127–140. https://doi.org/10.1057/jt.2011.10

Kazimean, S., Said, J., Nia, E. H., & Vakilifard, H. (2018). Examining Fraud Risk Factors on Asset Misappropriation : Evidence from the Iranian Banking Industry. *Journal of Financial Crime*, *26*(2), 447–463.

Khamainy, A. H., Amalia, M. M., Cakranegara, P. A., & Indrawati, A. (2022). Financial Statement Fraud: The Predictive Relevance of Fraud Hexagon Theory. *Journal of Accounting and Strategic Finance*, *5*(1), 110–133. https://doi.org/10.33005/jasf.v5i1.249.

Liou, F. M. (2008). Fraudulent Financial Reporting Detection and Business Failure Prediction Models: A comparison. *Managerial Auditing Journal*, *23*(7), 650–662. https://doi.org/10.1108/02686900810890625.

Locatelli, G., Mariani, G., Sainati, T., & Greco, M. (2017). Corruption in public projects and megaprojects: There is an elephant in the room! *International Journal of Project Management*, *35*(3), 252–268. https://doi.org/10.1016/j.ijproman.2016.09.010.

Loebbecke, J. K., Eining, M. M., & Willingham, J. J. (1989). Auditors' Experience with Material Irregularities: Frequency, Nature, and Detectability. *Auditing: A Journal of Practice & Theory*, *9*(Fall), 1–28.

Lou, Y.-I., & Wang, M.-L. (2009). Fraud Risk Factor Of The Fraud Triangle Assessing The Likelihood Of Fraudulent Financial Reporting. *Journal of Business & Economics Research (JBER)*, *7*(2), 61–78. https://doi.org/10.19030/jber.v7i2.2262.

Lu, W., & Zhao, X. (2020). Research and improvement of fraud identification model of Chinese A-share listed companies based on M-score. *Journal of Financial Crime*, *28*(2), 566–579. https://doi.org/10.1108/JFC-12-2019-0164.

Makkl, S. (2020). Kronologi Kasus Jiwasraya, Gagal Bayar Hingga Dugaan Korupsi. Retrieved February 28, 2021, from https://www.cnnindonesia.com/ekonomi/20200108111414-78-463406/kronologi-kasus-jiwasraya-gagal-bayar-hingga-dugaan-korupsi.

Marks, J. T. (2011). Why the Fraud Triangle is No Longer Enough. *Crowe Horwath LLP*.

Marks, J. T. (2012). The Mind Behind The Fraudsters Crime : Key Behavioral and Environmental Elements (Presentation). *Crowe Horwath LLP*, 1–62. Retrieved from www.crowe.com.

Maulidiana, S., & Triandi, T. (2020). Analysis of Fraudulent Financial Reporting Through the Fraud Pentagon Theory. *2nd International Seminar on Business, Economics, Social Science and Technology (ISBEST 2019)*, *143* (Isbest 2019), 214–219. https://doi.org/10.2991/aebmr.k.200522.042.

Nasution, A. B., Maarif, A. S., Aryman, A., Darwis, D., Hamid, E. S., Djamil, F., … Sumartana, T. (1999). *Menyingkap Korupsi, Kolusi, dan Nepotisme di Indonesia* (I; E. S. Hamid & M. Sayuti, Eds.). Yogyakarta: Aditya Media.

Nazri, S. N. F. S. M., Smith, M., & Ismail, Z. (2012). Factors Influencing Auditor Change: Evidence from Malaysia. *Asian Review of Accounting*, *20*(3), 222–240. https://doi.org/10.1108/1321734121126 3274.

Nguyen, T. N. L., & Nguyen, V. C. (2020). The Determinants of Profitability in Listed Enterprises: A Study from Vietnamese Stock Exchange. *Journal of Asian Finance, Economics and Business*, *7*(1), 47–58. https://doi.org/10.13106/jafeb.2020.vol7 .no1.47.

Noor, N. F. M., Sanusia, Z. M., Heang, L. T., Iskandar, T. M., & Isa, Y. M. (2015). Fraud Motives and Opportunities Factors on Earnings Manipulations. *Procedia Economics and Finance*, *28*(April), 126–135. https://doi.org/10.1016/s2212-5671(15)01091-6.

Nurhidayat, D. (2020). Kerugian Negara akibat Kasus Jiwasraya Capai Rp16,8 Triliun. Retrieved February 28, 2021, from https://mediaindonesia.com/politik-dan-hukum/295462/kerugian-negara-akibat-kasus-jiwasraya-capai-rp168-triliun.

Nuryani, N. N. J., Satrawan, D. P. R., Gorda, A. A. N. O. S., & Martini, L. K. B. (2018). Influence of Human Capital, Social Capital, Economic Capital Towards Financial Performance & Corporate Social Responsibility. *International Journal of Social Sciences and Humanities (IJSSH)*, *2*(2). https://doi.org/10.29332/ijssh.v2n2.128.

Omar, M., Nawawi, A., & Puteh Salin, A. S. A. (2016). The Causes, Impact and Prevention of Employee Fraud. *Journal of Financial Crime*, *23*(4), 1012–1027. https://doi.org/10.1108/jfc-04-2015-0020

Omukaga, K. O. (2020). Is The Fraud Diamond Perspective Valid in Kenya? *Journal of Financial Crime*. https://doi.org/10.1108/JFC-11-2019-0141.

Othman, R., & Ameer, R. (2022). In Employees We Trust: Employee Fraud in Small Businesses. *Journal of Management Control*, *33*(2), 189–213. https://doi.org/10.1007/s00187-022-00335-w.

Ozcelik, H. (2020). *An Analysis of Fraudulent Financial Reporting Using the Fraud Diamond Theory Perspective: An Empirical Study on the Manufacturing Sector Companies Listed on the Borsa Istanbul*. *102*, 131–153. https://doi.org/10.1108/s1569-375920200000102012.

Perols, J. L., & Lougee, B. A. (2011). The Relation Between Earnings Management and Financial Statement Fraud. *Advances in Accounting*, *27*(1), 39–53. https://doi.org/10.1016/j.adiac.2010.10.004.

Puspitha, M. Y., & Yasa, G. W. (2018). Fraud Pentagon Analysis in Detecting Fraudulent Financial Reporting (Study on Indonesian Capital Market). *International Journal of Sciences: Basic and Applied Research*, *42*(5), 93–109.

Rahman, R. A., Sulaiman, S., Fadel, E. S., & Kazemian, S. (2016). Earnings Management and Fraudulent Financial Reporting: The Malaysian Story. *Journal of Modern Accounting and Auditing*, *12*(2), 91–101. https://doi.org/10.17265/1548-6583/2016.02.003.

Ratmono, D., Darsono, D., & Cahyonowati, N. (2020). Financial Statement Fraud Detection With Beneish M-Score and Dechow F-Score Model: An Empirical Analysis of Fraud Pentagon Theory in Indonesia. *International Journal of Financial Research*, *11*(6), 154. https://doi.org/10.5430/ijfr.v11n6p154.

Rengganis, R. M. Y. D., Sari, M. M. R., Budiasih, I. G. A. ., Wirajaya, I. G. A., & Suprasto, H. B. (2019). The Fraud Diamond: Element in Detecting

Financial Statement of Fraud. *International Research Journal of Management, IT and Social Sciences*, *6*(3), 1–10. https://doi.org/10.21744/irjmis.v6n3.621.

Rika, H. (2019). BEI Bakal Panggil Auditor Tiga Pilar Sejahtera. Retrieved February 28, 2021, from https://www.cnnindonesia.com/ekonomi/20190330144809-92-381992/bei-bakal-panggil-auditor-tiga-pilar-sejahtera.

Romney, M. B., & Steinbart, P. J. (2015). *Accounting Information Systems (13th Edition)* (13th ed.). New York: Pearson.

Sari, S. P., & Nugroho, N. K. (2020). Financial Statements Fraud dengan Pendekatan Vousinas Fraud Hexagon Model: Tinjauan pada Perusahaan Terbuka di Indonesia. *1st ANNUAL CONFERENCE ON IHTIFAZ: Islamic Economics, Finance, and Banking (ACI-IJIEFB)*, 409–430. Retrieved from http://seminar.uad.ac.id/index.php/ihtifaz/article/download/3641/1023.

Schreier, C., Udomkit, N., & Ineichen, I. (2021). Unknown Territory – How SMEs Manage Trust While Doing Business Internationally: Cases From 18 Small And Medium Sized Swiss Enterprises. *ABAC Journal*, *41*(3), 192–211.

Seissian, L. A., Gharios, R. T., & Awad, A. B. (2018). Structural and Market-related Factors Impacting Profitability: A Cross Sectional Study of Listed Companies. *Arab Economic and Business Journal*, *13*(2), 125–133. https://doi.org/10.1016/j.aebj.2018.09.001.

Skousen, C. J., Smith, K. R., & Wright, C. J. (2009). Detecting and Predicting Financial Statement Fraud: The Effectiveness of the Fraud Triangle and SAS No. 99. In *Advances in Financial Economics* (Vol. 13, pp. 53–81). https://doi.org/10.1108/S1569-3732(2009)0000013005.

Supri, Z., Rura, Y., & Pontoh, G. T. (2018). Detection of Fraudulent Financial Statements with Fraud. *Journal of Research in Business and Management*, *6*(5), 39–45.

Susandra, F., & Hartina, S. (2017). Analisis Faktor-Faktor yang Mempengaruhi Kecenderungan Fraud Pada Satuan Kerja Perangkat Daerah (SKPD) di Kota Bogor. *Jurnal Akunida*, *3*(2), 35. https://doi.org/10.30997/jakd.v3i2.987.

Suyanto. (2009). Fraudulent Financial statement Evidence from Statement on Auditing Standard No . 99. *Gadjah Mada International Journal of Business*, *11*(1), 117–144.

Tarjo, & Herawati, N. (2015). Application of Beneish M-Score Models and Data Mining to Detect Financial Fraud. *Procedia - Social and Behavioral Sciences*, *211*(September), 924–930. https://doi.org/10.1016/j.sbspro.2015.11.122.

Ting, I. W. K., Azizan, N. A. B., & Kweh, Q. L. (2015). Upper Echelon Theory Revisited: The Relationship between CEO Personal Characteristics and Financial Leverage Decision. *Procedia - Social and Behavioral Sciences, 195*, 686–694. https://doi.org/10.1016/j.sbspro.2015.06.276.

Triastuti, H., Rahayu, S., & Riana, Z. (2020). Determinants of Fraud Pentagon Theory Perspective and Its Effects on Fraudulent Financial Statement in Mining Companies Which Is Listed In Indonesia Stock Exchange. *Budapest International Research and Critics Institute*, *3*(3), 1995–2010. Retrieved from http://www.bircu-journal.com/index.php/birci/article/view/1127.

Umar, H., Partahi, D., & Purba, R. B. (2020). Fraud diamond analysis in detecting fraudulent financial report. *International Journal of Scientific and Technology Research*, *9*(3), 6638–6646.

Vousinas, G. L. (2019). Advancing Theory of Fraud: the S.C.O.R.E. Model. *Journal of Financial Crime*, *26*(1), 372–381. https://doi.org/10.1108/JFC-12-2017-0128.

Widyaningsih, I. U., Gunardi, A., Rossi, M. &

Rahmawati, N. A. (2017). Expropriation by the controlling shareholders on firm value in the context of Indonesia: corporate governance as moderating variable. *International Journal of Managerial and Financial Accounting, 9*(4), 322-337. https://doi.org/10.1504/IJMFA.2017.08 9062

Wolfe, D. T., & Hermanson, D. R. (2004). The Fraud Diamond : Considering the Four Elements of Fraud. *The CPA Journal*, 1–5.

Yusof, M., Khair, A., & Simon, J. (2015). Fraudulent Financial Reporting: An Application of Fraud Models to Malaysian Public Listed Companies. *The Macrotheme Review: A Multidisciplinary Journal of Global Macro Trends*, *2*(4), 144–160.