International Journal of Latest Research in Humanities and Social Science (IJLRHSS)
Volume 06 - Issue 01, 2023
www.ijlrhss.com || PP. 152-159

Detection of Fraud Financial Statements through the Hexagon Model Vousinas Fraud Dimensions: Review on Jakarta Islamic Index 70

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Abstract: Fraud in a financial report is done on purpose or by accident when the financial statements presented are not in line with accounting standards. Some mistakes made intentionally in the financial statements by concealing the truth of the disclosure of the financial statement information. There are several models used to detect fraud in financial statements. One of them is the fraud hexagon model, which detects fraud in financial reports, developed by Georginas L. Vousinas (2019). This study aims to detect the effect of all the fraud hexagon model factors on financial statement fraud. The sample in this study is comprised of companies registered on the Jakarta Islamic Index (JII) for 2019–2021. The sample is detined using the purposive sampling method, whichuse to select samples according to certain criteria, as many as 66 samples for three years. The hypothesis in this study was tested using logistic regression analysis to analyse the data. The results of this study indicate that financial stability and ego/arrogance have an effect on financial statement fraud, while personal financial need, external pressure, financial target, capability, the nature of the industry, effective monitoring, rationalization, and collusion have no effect on financial statement fraud.

Keywords: Financial statement fraud, fraud hexagon model, m-score model, Jakarta islamic index 70.

1. Introduction

The financial report is a document that contains financial records that describe the company's performance during the accounting period. When financial reports are issued by the company, the company actually tries to present and describe conditions in an honest and good light. However, sometimes there are circumstances where management cannot present them properly and soundly due to material misstatements that can encourage manipulation or fraud on the part of the company. certain parts so that the financial statements look perfect. Then, by presenting irrelevant information, a company can be tricked and make that the company's performance and condition can still be seen properly by various parties at any time [15].

The Association of Certified Fraud Examiners (2022) says that there are three main types of job fraud at the most basic level. The vast majority of cases (86%) involve misappropriation of assets, where an employee steals or misuses company resources. in the survey [1]. In 40% of the cases in our study, more than one of the three main types of job fraud was involved. 2% of fraudsters misappropriate assets, and 32% of them are also involved in corruption schemes. 1% were involved in corruption and financial statement fraud, 1% committed both crimes, and 5% combined the three into one scheme. In Indonesia, there have been cases of fraud in financial statements that have occurred, for example, in two companies, namely PT Angkasa Pura II (Persero) and PT Industri Telekomunikasi Indonesia (Persero). The two companies cooperate in working on a baggage handling system (BHS) procurement project worth 86 billion. However, in the process, Finance Director of AP II allegedly received a bribe of 96,700 Singapore dollars from the Main Director of PT INTI as a thank-you gift for the project. With the existence of cases of fraudulent financial statements in some companies, efforts are needed to control fraud, which canbe used as indicators to detect fraudulent financial statements issued by the company. Because there are several basic frauds and methods for detecting fraud on financial statements, detecting fraud can be difficult at times.

According to the fraud hexagon model found by Georgios L. Vousinas in 2019, there are six conditions that exist in fraudulent acts: stimulus (pressure), capability, opportunity, rationalization, arrogance, and collusion. These six conditions are the most common causes of financial statement fraud. The fraud hexagon model is a refinement of the fraud pentagon theory, which consists of five components: pressure, opportunity, rationalization, capability, and arrogance. In recent years, the six-factor fraud hexagon model has been shown to be the axis where fraud incidents increase [19].

2. Literature

Agency Theory

Agency theory, explains that agency relations develop among shareholders (principals) who enter into

contracts with management to employ and delegate their responsibilities in decision-making to others (agents) [10]. As a contracting agent, management must also be responsible for all the work done for the shareholders (principal). However, there are also those who argue that the interests of management and shareholders are sometimes not in line, it will cause a few problems.

Agency theory is defined by an imbalance between principal and agent caused by differences in interests. The principal demands that the agent's actions be in accordance with his expectations, while the agent's motivation to do something always aims to maximize his utility. This difference in interests causes the principal to always supervise agents, which causes agency costs to arise when controlling management performance. The principal authorizes the agent to carry out the principal's interests, and the agent is more concerned with the principal's interests than trying to add value to the company [7]. This difference in interests can trigger fraudulent behavior and practices in financial reports.

Financial Statement Fraud

The Association of Certified Fraud Examiners (ACFE) defines fraud as a violation of the law that is carried out intentionally by making false and erroneous reports with the aim of obtaining personal or collective benefits and submitting them to other parties. Financial statement fraud is an intentional or unintentional act or activity in financial statements that can make it difficult for users of financial statement information to make economic decisions and policies.

Financial statement fraud occurs as a result of someone's actions because of their intelligence in assembling the preparation of financial reports that look perfect and are in accordance with the actual conditions ofthe company [14]. mistakes made intentionally in the financial statements by concealing the truth of the disclosure of the financial statement information. Fraud in financial statements is intentional or negligently committed in financial statements where the financial statements presented are not in accordance with applicable accounting standards.

Beneish M-Score

The Beneish M-score as a method of detecting fraud or manipulation of financial reports. In this Beneish M-score model, it is able to accurately detect 76% of companies affected by accounting enforcement actions [4] and 71% of conspicuous financial reporting enforcement cases before public regulations were made to only rely on disclosed accounting data on financial reports. The Beneish M-score model is useful for distinguishing profit manipulators who have violated accounting rules from non-manipulators by utilizing financial statement variables. The model, named Beneish M-score, consists of eight ratios to detect fraud in financial statements, namely: (1) Days Sales inReceivables Index (DSRI); (2) Gross Margin Index (GMI); (3) Asset Quality Index (AQI); (4) Sales Growth Index (SGI); (5) Depreciation Index (DEPI); (6) Sales General and Administrative Expenses Index (SGAI); (7) Leverage Index (LVGI); and (8) Total Accruals to Total Assets (TATA).

Fraud Hexagon Model

The fraud hexagon model is a development of the fraud triangle by Cressey (1993), three conditions that lead to fraud in financial statements. These conditions are pressure, opportunity, and rationalization, or what can be called the "triangle theory." Then this theory was further developed intoa "diamond theory" by adding abilities. The latest theory development was carried out in 2019 by Vousinas, who replaced the element of arrogance with ego by creating a new theory, namely the S.C.O.R.E. model (an abbreviation of the words stimulus, capability, opportunity, rationalization, and ego) [21]. And also adding the element of collusion, this theory consists of six elements, which is called the Hexagon Theory. The following is an overview of the hexagon model:

a. Financial Stability

Financial stability is a condition that indicates that the company's financial situation is stable. Financial stability is also an indicator of company performance when assessing the stability of the company's growth from a financial perspective. A company is financially stable if its financial growth is measured by company sales, the value of the company's annual income, and the growth of company assets [17]. According to [16], financial stability will occur when a company experiences shocks or threats related to economic conditions. In these circumstances, the company's management is under pressure to commit fraud in the financial statements due to the threat of economic conditions. Management also uses various methods to keepthe financial statements stable, including committing fraud.

H1: financial stability affects financial statement fraud.

b. Personal Financial Need

Personal financial need is a company's financial condition that is influenced by the personal needs of the company [16]. Personal needs, such as lifestyle, economic, and other needs, both financial and non-financial, can put a person under stress. This can encourage management to commit fraudulent acts in the financial statements. Fraud committed by management aims to present the company's financial statements in perfect condition.

H2: Personal financial need affects financial statement fraud.

c. External Pressure

External pressure can be interpreted as pressure from outside in the form of expectations and requirements that must be met by management. Management's ability to try to fulfill debt payments, exchange listing requirements, and debt agreements is the effect of external pressure [8]. The existence of pressure from outsiders will cause management to commit acts of fraud by justifying various ways in order to present financial reports perfectly and make the company's performance look good.

H3: External pressure affects financial statement fraud.

d. Financial Target

Financial targets are one of the pressures from the company's internal parties that are carried out to achieve company targets. This is because good company performance is usually measured by the profits earned bythe company, and this can encourage management to commit fraudulent acts on financial reports [20]. The company's performance can also be said to be good if the financial target is higher; therefore, ifthe management gets high profits, in line with increase of bonus will be. Management will use all reasonable efforts to meet company targets. In this case, management will exert pressure to get a bonus or performance results in exchange for a given request. As a result, they will commit fraud on financial statements.

H4: Financial target affects financial statement fraud.

e. Capability

Capability is the expertise or capacity possessed by the perpetrator to commit acts of fraud in the company environment. According to [8], a change of directors might signal a detection of fraud in the company's financial reports. because the change of directors is likely an attempt by the company to overthrow a director who is believed to be aware of fraud. According to the Hexagon Theory of Fraud, fraud can occur and become even more dangerous if it is carried out by the right people to take advantage of the opportunities that are already available. Moreover, according to agency theory, management will be more knowledgeable than, that make an opportunity to use to carry out its actions.

H5: Capability has an impact on financial statement fraud.

f. Nature of Industry

The nature of the industry can be interpreted as an ideal situation for the company. One opportunity for financial statement fraud can be found in the economic and regulatory context in which companies operate. This also applies to receivables. Arbitrary evaluation of bad debts gives management an opportunity to exploit these accounts to manipulate finances [10]. This demonstrates that business actors who engage in transactions involving negative conflicts of interest frequently manipulate, one of which is by reducing receivables.

H6: The nature of the industry affects financial statement fraud.

g. Effective Monitoring

Effective monitoring is a monitoring activity carried out by the company so that the company's performance looks good. To increase the effectiveness of company supervision, it is customary to appoint an independent supervisory board to carry out the supervisory function within the supervisory board. However, in companies, there are many supervisory boards that are difficult to supervise. This will create opportunities for fraud in financial statements.

H7: Effective monitoring affects financial statement fraud.

h. Rationalization

Rationalization is an action to defend oneself from dishonesty about what is done. Fraudsters use rationalization as a defense for their unethical behavior to avoid detection, acceptance, or condemnation of their fraud tactics. Fraudsters justify their actions by subjectively evaluating the value of company-reported accruals in financial accounts [16]. The perpetrator took advantage of this opportunity to change the numbers in the financial statements.

H8: Rationalization affects financial statement fraud.

i. Arrogance

Arrogance is defined as a person's greedy or selfish behavior because he believes that a rule does not apply to him. By feeling that there are no regulations in force, the perpetrators are not aware that they have committed fraud on financial statements. The perpetrator has high arrogance because there are no binding rules. They can take advantage of this opportunity to commit fraud on financial statements. According to [3], ego can be seen from the many photos of the CEO contained in the company's financial statements because the many photos show the level of arrogance that the CEO has because he feels that regulations will not apply because of his position. This is what triggers fraudulent acts on financial reports.

H9: Arrogance affects financial statement fraud.

j. Collusion

Collusion is a problem that troubles the parties because it relates to an agreement in which two or more parties are deceived, and one of the parties tries to commit an act of defrauding the rights of a third party [21]. Collusion can lead to cooperation between perpetrators of fraud so that make a fraudulent scheme can occur. It causes a sizeable total loss for the victims of fraud.

H10: Collusion affects financial statement fraud.

3. Method

The population in this study uses companies registered on the Jakarta Islamic Index 70 (JII 70) in the 2019–2021 period as a population of 43 companies. A total of 43 companies were re-selected using the purposive sampling method to determine which research samples fit the predetermined criteria. The number of samples that can be used in this study is 66 (22 companies x 3 years). The results of the sample selection are based on the criteria shown in the table and are as follows:

1. Companies registered on the Jakarta Islamic Index 70 (JII 70) during 2019–2021.
2. JII lists 70 companies that publish annual reports consecutively for 2019–2021.
3. JII identified 70 companies that indicated manipulation (fraud) with the Beneish M-Score.

Financial Statement Fraud

The Beneish M-Score model is a calculation model used to determine whether a company's financial statements tend to commit fraud, for example by manipulating data. The Beneish M-Score was developed by Beneish[4]. The Beneish M-Score is calculated with 8 indices as follows:

1. Days' Sales in Receivable Index (DSIR)

$$\text{DSIR} = \frac{(\text{Receivable } t/\text{Sales } t)}{(\text{Receivable } t-1/\text{ Sales } t-1)}$$

2. Gross Margin Index (GMI)

$$\text{GMI} = \frac{(\text{Sales } t-1-\text{COGS } T-1)/\text{Sales } t-1}{(\text{Sales } t-\text{COGS } t)/\text{Sales } t}$$

3. Asset quality Index (AQI)

$$\text{AQI} = \frac{(1-((\text{Current Asset } t+\text{PPE } t)/\text{Total Asset } t))}{(1-((\text{Current Asset } t-1+\text{PPE } t-1)/\text{Total Asset } t-1))}$$

4. Sales Growth Index (SGI)

$$\text{SGI} = \frac{\text{Sales } t}{\text{Sales } t-1}$$

5. Depreciation Index (DEPI)

$$\text{DEPI} = \frac{(\text{Depreciation } t-1/(\text{Depreciation } t-1+\text{PPE } t-1)}{(\text{Depreciation } t/(\text{Depreciation } t+\text{PPE } T))}$$

6. Sales General and Administrative Expense Index (SGAI)

$$\text{SGAI} = \frac{(\text{SGA expenses } t/\text{Sales } t)}{(\text{SGA expenses } t-1/\text{Sales } t-1)}$$

7. Leverage Index (LEIN)

$$\text{LEIN} = \frac{((\text{LTD } t+\text{Current Liabilities } t)/\text{Total Assets } t)}{((\text{LTD } t-1+\text{Current Liabilities } t-1)/\text{Total Assets } t-1)}$$

8. Total Accruals to Total Assets Index (TATA)

$$\text{TATA}= \frac{(\text{Income before Extraordinary Item } t-\text{Operating Cash Flow } t)}{\text{Total Assets}}$$

Based on the calculation results with the eight indices above, it will be recalculated with the following formula:

M = -4,84 + 0,920*DSIR + 0,528*GMI + 0,404*AQI + 0,892*SGI + 0,115*DEPI – 0,172*SGAI + 4,679*TATA – 0,327*LEIN

The Beneish M-Score value of the model will focus on companies that have detected financial statement fraud if the Beneish M-Score value is higher than -2.22 [5]. If the company detects fraudulent acts in the financial statements, it will be given a score of 1, whereas if fraud is not detected, it will be given a score of 0.

Measurement of Fraud Hexagon Variables

Table 1 Independent Variable Measurement

Variable	Variable Operational Definitions	Source
Financial Stability (FS)	$FS = \frac{\text{Total Assets}_{(t)} - \text{Total Assets}_{(t-1)}}{\text{Total Assets}_{(t)}}$	Beasley et al, (2000)
Personal Financial Need (PFN)	$PFN = \frac{\text{Number of Managerial Shares}}{\text{total number of shares}}$	Skousen et al. (2009)
External Pressure (EP)	$EP = \frac{\text{Total Liabilities}}{\text{Total Assets}}$	Skousen et al, (2009)
Financial Target (FT)	$FT = \frac{\text{Net Profit}}{\text{Total Assets}}$	Skousen et al, (2009)
Capability (CY)	Code 1, if there is a change of directors during 2019–2021. If there is no change of directors between 2019 and 2021, code 0.	Wolfe & Hermanson (2004)
Nature of Industry (NOI)	$NOI = \frac{\text{Receivable}}{\text{Sales}} - \frac{\text{Receivable}_{(t-1)}}{\text{Sales}_{(t-1)}}$	Skousen et al, (2009)
Effective Monitoring (EM)	$EM = \frac{\text{number of independent commissioners}}{\text{Total Board of Commissioners}}$	Skousen et al, (2009)
Rationalization (RN)	Code 1, if there is a change in KAP during 2019-2021. Code 0, if there is no KAP change during 2019-2021.	Skousen et al, (2009)
Arrogance (EG)	Number of CEO images included in annual reports during 2019-2021.	Crowe (2012)
Collusion (CN)	Code 1, if the company cooperates with government projects during 2019-2021. Code 0, if the company does not cooperate with government projects during 2019-2021.	Vousinas (2019)

Source: Sari & Nugroho (2021)

Data Analysis Technique

Logistic regression is a regression that is used when the dependent variable is in the form of a scale and has a categorical type of two choices between yes or no, or even more than two choices such as agree, disagree, and strongly agree [7]. The reason for using logistic regression is because financial statement fraud is included in the dummy variable. In the dummy variable, there are two categories, namely occurring and not occurring, with the code if it occurs getting a score of 1, and if it does not occur getting a score of 0. With the regression model as follows:

$$\mathbf{FSF = a + b_1FS + b_2PFN + b_3EP + b_4FT + b_5CY + b_6NOI + b_7EM + b_8RN + b_9EG + b_{10}CN + e}$$

4. Result and Discussion

Companies listed on the Jakarta Islamic Index 70 that issued a complete report consecutively during 2019–2021 totaled 123 companies. After calculating the Beneish M-Score, there are 57 companies that have no indication of committing fraud. Based on these criteria, there were 66 companies selected as samples.

Table 2 Hosmer and Lemeshow's

Chi-square	Df	Sig.
5.160	7	0.640

Overall Model Fit	
-2 Log Likelihood Block N = 0 91.435	-2 Log Likehood Block N = 1 68.384

Coefficient of Determination		
-2 Log likelihood 68.384	Cox & Snell R Square 0.295	Nagelkerke R Square 0.393

Source: data process, 2023

The research model can be used and fits the data, as evidence by the Hosmer and Leme show goodness of fit test results, which indicate a chi-square value of 5.160 and a significant value of 0.640 (less than 0.05).The -2LogLikekihood value in Block 1 is 68.384, which is lower than the -2LogLikekihood value in Block 0 of 91.425, supporting these findings. Because the model is believed to suit the data, a decrease in the -2 log likelihood indicates a positive development. The Nagelkerke Rsquare coefficient of determination is 0.393, which indicates that the variability of each fraud factor hexagon model may explain financial statement fraud by 39.3%, with the remaining 60.7% being explained by other factors.

a. Hypothesis Testing

Table 3: Hypothesis Test Results

Variabel	Sig.	Decision
Financial Stability	0.004	H1Accepted
Personal Financial Need	0.605	H2 Rejected
External Pressure	0.877	H3 Rejected
Financial Target	0.273	H4 Rejected
Capability	0.573	H5 Rejected
Nature of Industry	0.274	H6 Rejected
Effective Monitoring	0.916	H7 Rejected
Rationalization	0.999	H8 Rejected
Arrogance	0.081	H9 Accepted
Collusion	0.697	H10 Rejected

Source: data process, 2023

Table three's findings for the test of financial stability A significance score of 0.004 less than 10% (0.004<0.1) indicates that **H1 is accepted**. This demonstrates how the health of the economy affects financial report fraud.The findings of this study support [9], but they do not yet back up [20]. This study is unable to demonstrate how prudent asset management maintains financial stability but instead fosters financial statement fraud by businesses that wish to portray their financial standing as stable despite experiencing shocks or dangers related to their industry.

From the results of the personal financial need test, a significance value of 0.605 is obtained, which is more than 10% (0.605>0.1), and **H2 is rejected**, meaning that personal financial need does not affect on financial report fraud. This research is in line with [6]. With little or a lot of individual management share ownership, this does not result in managerial parties committing fraud in the financial statements because there are restrictions on rights or ownership in accordance with applicable regulations.

When the external pressure test results show a significance value of 0.877, which is greater than 10% (0.877>0.1), **H3 is rejected**. This means that external pressure does not affect fraudulent financial statements. These results support [8]. and it explains that companies can fullfil their obligations without being under pressure.

When the financial target test results show a significance value of 0.273, which is greater than 10% (0.273 > 0.1), **H4 is rejected**, and indicate that the financial target does notaffect financial report fraud. The results of this study support the research of [16]. The size of the financial targets set by the company will not affect the management's decision to commit fraud in financial reporting because the size of the targets ishave still within a reasonable range and can be achieved.

The results of the capability test obtained a significance value of 0.573, which is greater than 10% (0.573 > 0.1), then **H5 is rejected**and that capability does not affect financial statement fraud. The results of this study are in accordance with [11]. There is no change in the board of directors because the company retainsthe board of directors because of their performance and ability to maintain the company in good condition.

The nature of industry test results obtaine a significance value of 0.274, which is greater than 10% (0.274>0.1), then **H6 is rejected**and the nature of industry does not affect fraud in financial statements. The results of this study are the same as those of [17], but inversely proportional tothe results of [19]. The decrease in receivables in a company will indicate that the company is in good condition, because decreasing receivables will increase cash that the company can use for other operational activities.

Effective monitoring test results obtaine a significance value of 0.916, which is greater than 10% (0.916 > 0.1), then **H7 is rejected**and that effective monitoring does notaffect financial report fraud. The results of this study support [9]. Effective supervision that carried out by several independent commissioners on management is not of much concern, because management is paid more attention to the effectiveness of its performance.

From the rationalization test results obtaine, a significance value of 0.999 was, which is greater than 10% (0.999>0.1), then **H8 is rejected**and that rationalization does not affect financial statement fraud. The results of this study are in accordance with the research of [11] and [12]. Audits that are not performe on a regular basis because the manager believes that the audit will not commit fraud on the financial statements because the company has strong internal controls, and also because the management believes that all actions taken are not fraudulent because that is already their job.

The results of the arrogance test, a significance value of 0.081 is obtained, which is less than 10% (0.081<0.1), then **H9 is accepted**. It means arrogance affect financial statement fraud. The results of this study are in line with the research of [11]. The more CEOs displayed in the company's annual report, the more one can detect the CEO's ego in the company. With a high level of ego, it will lead to fraud in financial statements because the CEO will make the CEO hold all internal controls because he feels he has a high position.

The collusion test results obtaine a significance value of 0.697 which is greater than 10% (0.697>0.1), then **H10 is rejected**. And collusion does not affect fraud in financial statements. This research supports the research of [13], but does not support the research results of [2] . Cooperation with government projects will not lead to corporate efforts to commit fraud on financial reports. In general, companies that cooperate with government projects to improve the quality of their products.

5. Conclusion

The results of this study indicate that of the four main factors of the Vousinas Fraud Hexagon Model, namely stimulus in terms of financial stability and arrogance, has affect on financial statement fraud. For other factors, namely the stimulus in terms of personal financial need, external pressure, financial targets; capability; opportunity in terms of effective monitoring, nature of industry; rationalization; and collusion have no effect on fraud in financial statements. The results of this study indicate that companies registered on the Islamic market are guaranteed to be safe and trustworthy according to Islamic law. Investors can make transactions on the Islamic market comfortably because the possibility of financial statement fraud on the companies listed in theIslamic is very low. Judging from the results of this study, it can be shown that the Islamic market is also able to develop rapidly and can be introduced throughout the world.

This research tries to find a measurement for the collusion factor in the fraud hexagon model, although it is still very limited, there is only information available in the company's annual report. Future research can use broader measurements as suggested in [20] and [21], namely by using supporting information from various parties related to the project.

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