

Detecting Financial Statement Fraud Using Fraud Triangle and Board of Director's Attributes Analyses

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Abstract. This study examines whether fraud triangle and board of director's attributes analyses can detect financial statement fraud in Indonesian listed companies. Financial statement fraud is proxied by Dechow 's fraud score model. The fraud triangle analysis includes financial stability, effective monitoring, and rationalization whereas the board of director's attributes analysis covers number of independent board and board of director's gender diversity. The unit of analysis is companies listed in KOMPAS100, an index that comprises 100 companies listed in the Indonesian Stock Exchange that have sound liquidity and large market capitalization. The period of the study is 2016 to 2019. The results of the study show that neither of the three aspects fraud triangle nor the two aspects of the board of director's attributes analysis can detect the financial statement fraud. Such results evidence the extent to which large and liquid Indonesian listed companies have fairly reported their financial statements.

Keywords: Financial Statement Fraud, Fraud Triangle, Board of director's Attributes.

1 Introduction

Presentation of accounting information plays an essential role because it can help the users to make a better decision by reporting information about the business concern [1]. As such, accounting information shall meet some criteria known as the fundamental qualitative characteristics. The fundamental characteristics include relevance and faithful representation [2].

Relevance refers to the extent to which the information is helpful for financial decision-making processes. Faithful representation, also known as reliability, is how accurate the accounting information reflects the state of a company. The two primary qualitative characteristics of accounting have been stipulated by almost all nations in their accounting standards, including Indonesia. However, the history shows that some companies, including big ones, had manipulated their financial statements. Such conscious and intentional action of manipulating the financial statements with major impacts to the financial information is categorized as financial statement fraud [3].

One of the most notorious accounting scandals in the world is Enron scandal in 2001. Enron, one of the largest energy companies at the time, increased its profits by transferring expenses to the capital account [4]. The scandal not only destroyed Enron but also became the main factor that caused Arthur Andersen, one of the largest accounting firms at that time and the accounting advisor for Enron, to defunct in 2002 [4].

Case of material accounting misstatement can also be found in Indonesia. In 2002, for example, BAPEPAM, the Indonesian agency that was in charge for supervising Indonesian capital market, has found PT Kimia Farma Tbk, an Indonesian state-owned listed pharmacy company, overreported its net profit by 24.7 percent and sales by 2.3 percent [5]. The scheme that was allegedly used by PT. Kimia Farma was by over-presenting sales and inventories in three business units and by double-recording sales in two business units. PT. Kimia Farma was penalized administrative and penalty sanctions [5].

Using Indonesian companies listed in KOMPAS100 as the unit of analysis, this study aims to analyze whether the fraud triangle analysis can detect financial statement fraud. This study also investigates whether the directors' diversity analysis can detect financial statement fraud. While the companies listed in the KOMPAS100 index are large companies that presumably have conducted sound accounting principles and standards, it is important to examine as to whether their financial reports are free from fraud because they have received funding from the society via investment mechanism.

Both fraud triangle and directors' diversity analyses evidences that companies listed in KOMPAS100 index did not commit financial statement fraud, inconsistent with results from several previous studies that find that financial stability, effective monitoring, rationalization, board of directors size, and board of director gender diversity has significant relationship with financial statement fraud [7]–[11].

The current study combines fraud triangle and directors' diversity analyses to detect financial statement fraud. This makes the study different from previous similar studies that utilize single fraud detection method, either fraud triangle analysis [8], [12], or directors' diversity [7], [9], [10].

2 Literature Review

According to the literature, there are some methods to detect the fraud. A main method is known as the fraud triangle theory. According to the theory, a person or group of people commit fraud when three conditions exist namely pressure, opportunity, and rationalization [13]. Another method that could detect fraud is the diversity or the composition of board of director. According to earlier research, there is a strong correlation between the diversity of the board of directors, including gender diversity, experience, and fraud

One of the three components of the fraud triangle theory is pressure. Pressure can be portrayed through financial stability of the entity. If the entity is facing an unstable financial condition, the pressure to commit fraud will be higher [12]. Some studies have proven that the pressure aspect has a significant relationship with financial statement fraud [7], [8]. On the other hand, a company that has good financial stability is less likely to have pressure to commit fraud. This leads to the first hypothesis stated in the alternative form:

H1: Financial stability can detect financial statement fraud.

Fraud triangle theory states that financial statement fraud could be done if there is an opportunity and that the opportunity exists due to low quality of monitoring [14]. Higher effectiveness of supervision or monitoring in a company could lower potential for financial statement fraud [15]. While several previous studies discovered a significant correlation or impact between effective monitoring and financial statement fraud is significant [8], some others are not [13]. This leads to the second hypothesis stated in the alternative form:

H2: Effective monitoring can detect financial statement fraud.

In the fraud triangle model, rationalization is the third component. Rationalization is a justification or a reason for committing fraudulent action [16]. Earlier studies find that financial statement fraud happens because of the management's lack of manner and attitude, which become a significant determinant of rationalization [8]. However, some earlier studies find that there is no correlation between rationalization and financial statement fraud [17]. This leads to the following hypothesis stated in the alternative form:

H3: Rationalization can detect financial statement fraud.

The diversity of directors' jobs could also be useful in identifying fraud on financial statements. One of the director's attributes that could be correlated to financial statement fraud is the size of the board of director. Prior studies evidence that multi-jobs director could increase the firm monitoring that eventually will decrease fraud chance [9]. However, one should note that there are some studies that find that there is insignificant correlation between Board of director's size and fraudulent of financial statement [18]. This leads to the following hypothesis stated in the alternative form:

H4: Board of director's size can detect financial statement fraud.

Director is a strategic position. A more diverse board of director could make less chance to financial statement fraud. This type of diversity could be derived from gender diversity. This happens due to the different characteristics between females and males on perception of risk, where women are likely to take less risk than men [10]. Prior research also find that the existence of female directors decrease the chance of fraud [11]. This leads to the following hypothesis stated in the alternative form:

H5: Board of director's gender diversity can detect financial statement fraud.

3 Research Method

This study utilizes financial data of public companies listed on Indonesia KOMPAS100 index. KOMPAS 100 is an index that comprises 100 companies listed in the Indonesian Stock Exchange that have sound liquidity and large market capitalization. The data include annual reports that contains board of directors' data and annual financial statements of the company. The period of study is 2016 to 2019. The procedures taken to select the firms to be included in the study are:

- 1) Include all companies listed KOMPAS100 index
- 2) Collects data for companies that have complete annual reports and financial statements from 2016 to 2019
- 3) Exclude bank companies.

F Score model, developed by Dechow in 2011 [19], is used to detect financial statement fraud, i.e. the dependent variable of the study. The model is based on various dimension of variables such as accrual quality and financial performance, non-financial performance, off-balance sheet activity, and market-related activity. The model for Fraud Score is:

$$F = Qa + Fp \quad (1)$$

Where:

- F is fraud score
- Qa is accrual quality
- Fp is financial performance

Qa is derived as follows:

$$Qa = \frac{(\Delta \text{Working Capital} + \Delta \text{Non-current Operating Accrual} + \Delta \text{Financial Accrual})}{\text{Average Total Asset}} \quad (2)$$

$$\text{Financial Performance} = \Delta \text{receivable} + \Delta \text{inventories} + \Delta \text{sales} + \Delta \text{earning} \quad (3)$$

This study uses five independent variables i.e.: financial stability, effective monitoring, rationalization, board of director's size, and board of director's gender diversity. A control variable used in the current study is size of the company, proxied by total asset in log form. Table 1 presents the variables.

Table 1. Independent Variable

Variable Name	Variable Code	Variable Formula
Financial Stability	SATA	$\frac{\text{Total Sales}}{\text{Total Asset}}$
Effective Monitoring	IND	$\frac{\text{Number of Independent Boards}}{\text{Total Boards}}$
Rationalization	INTREND	$\frac{\text{Net Profit } t}{\text{Net Profit } t-1}$
Board of Director's Size	BODSIZE	Total Size of Board of Director
Board of director's Gender Diversity	BODGEND	$\frac{\text{Number of Female Board of Director}}{\text{Total Number of Board of Director}}$
LnTotal Asset	LNTA	Ln Total Asset

Therefore, the final research model for OLS regression analysis used in this study is:

$$\text{FSCORE}_{jt} = \beta_0 + \beta_1 \text{SATA}_{jt} + \beta_2 \text{IND}_{jt} + \beta_3 \text{INTREND}_{jt} + \beta_4 \text{BODSIZE}_{jt} + \beta_5 \text{BODGEND}_{jt} + \epsilon_{jt} \quad (4)$$

Where:

- FSCORE is financial statement fraud
- SATA is financial stability
- IND is effective monitoring
- INTREND is rationalization
- BODSIZE is board of director's Size
- BODGEND is board of director's gender diversity
- ϵ_{jt} is the error term

As can be seen from Eq. (4), the current study combines fraud triangle and directors' analyses by including the first three independent variable from fraud triangle analyses [8] and the last two independent variables from the board of directors' diversity analyses [11]. Such combination makes the current study different from previous research. The model of the research has been tested with some classic assumption tests and no issues found.

4 Result and Discussion

4.1 Descriptive Statistic

Table 2 illustrates the descriptive statistics of the observations.

Table 2. Descriptive Statistics

Variable	Observation	Mean	Std Dev	Min	Max
FSCORE	290	.2199974	.3198905	-.5001975	1.401307
SATA	290	.7672479	.5984977	0	3.01441
IND	290	.2398459	.0873871	.0833333	.5

INTREND	290	1.391426	4.294834	-15.63676	53.56977
BODSIZE	290	6.137931	1.977803	2	13
BODGEND	290	.1329576	.1888348	0	.8
LNTA	290	30.60213	1.130139	27.83454	33.49453

This study excludes some outliers identified as the lowest 5 percent and the highest 5 percent.

4.2 Hypothesis Test

Table 3 summarizes the regression results.

Table 3. Regression Results

FSCORE	Coefficient	Std. err.	T	P>t	[95% conf. interval]	
SATA	-.1531954	.1839873	-0.83	0.406	-.5159455	.2095547
IND	.1337382	.3742135	0.36	0.721	-.6040624	.8715387
INTREND	-.0003752	.0044922	-0.08	0.934	-.0092321	.0084817
BODSIZE	-.0094364	.0243448	-0.39	0.699	-.0574347	.0385619
BODGEND	.0647639	.3616838	0.18	0.858	-.6483331	.7778608
LNTA	.2635872	.0849738	3.10	0.002	.0960525	.4311219

4.3 Discussion

The P-value of financial stability (SATA) variable is 0.406, higher than 5 percent alpha, suggesting that there is no significant correlation between financial stability and fraudulent of financial statement. As a result, it can be concluded that companies listed on KOMPAS 100 index did not commit financial statement fraud, most likely due to the efficient and effective internal control that is applied in the company's environment [20]. In other words, the internal control has effectively limited the occurrence of financial statement fraud within the companies.

The effective monitoring (IND) variable is also unlikely to correlate with the financial statement fraud. This can be concluded from the fact that its P-value is higher than 5 percent alpha. This result suggests that number of independent directors does not play a significant role in suppressing fraud. This result is reasonable because, as suggested by the result for SATA, the companies already have efficient internal control. Another plausible reason is that companies have independent directors merely to meet the obligation as stipulated by the law [21].

Consistently, rationalization (INTREND) has no significant relationship with fraud. This finding suggests that no sufficient evidence to conclude that companies listed in KOMPAS 100 index have arranged their profit performance in such a way to received greater bonus. A plausible explanation could be that as the companies are the top listed companies in Indonesia, they do not need to arrange the financial statements in order to receive more bonus, consistent with [22].

The board of director's size (BODSIZE) also has insignificant relationship with fraud. This is in line with previous research which concluded that the size board of directors does not have any significant impact to the financial statement fraud [18]. This result implies that number of directors who run the company does not contribute to financial statement fraud being occur.

Lastly, board of director's gender diversity (BODGEND) also does not have significant impact on fraud. Apparently, the comparison between men and women directors is not relevant, consistent with the results found in prior studies [22]. This finding is inconsistent with previous studies, such as [22] who find that the presence of female chairperson could increase the financial reporting quality.

5 Conclusion

This study examines the existence of fraud by utilizing fraud triangle and board of director's attribute analyses. Fraud indicator used is the F-Score model developed by Dechow in 2011. The unit of analysis used in the study is Indonesian companies that are listed in KOMPAS100 index. The regression results indicate that neither the fraud triangle element nor board of directors' attributes have a significant relationship with financial statement fraud. The results indicate the extent to which the top companies listed in the Indonesian stock exchange have reported their financial statements according to the applicable accounting standards.

This study contains at least a couple of limitations. First, the data used is limited to the Indonesia companies listed in KOMPAS 100 index. Second, the period of study covers only four years of observation from 2016 to 2019. Therefore, for future studies, expanding the scope of the companies as well as the study period would be an ideal plan of research to obtain more robust results on detecting accounting fraud committed by companies. More

variables could also be added to the fraud triangle research model such as external pressure and nature of industry. As for the board of director's attributes model, adding board of director's age and board of director's education level might be interesting to look at.

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