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The Effect of Fraud Pentagon Theory on Financial Statements: **Empirical Evidence from Indonesia**

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Abstract

This study aims to obtain empirical evidence regarding the effect of the fraud pentagon theory on financial statement fraud. The novelty of this study is the use of factor analysis to consolidate the five elements of the fraud pentagon into just one factor, which, to the knowledge of the researcher, no one else has done to research the effect of pentagon fraud on financial statement fraud. This study uses both agency theory and fraud pentagon theory. The population of this study consists of state-owned companies listed on the Indonesia Stock Exchange. The research period in this study is from 2014 to 2019. The data used in this study is secondary data obtained from the company's annual financial statements. A purposive sampling technique was used to determine the research sample. The selected companies total 20. Factor analysis and simple linear regression analysis method were used as research the methods. Based on the research results, it was found that the fraud pentagon theory had a positive effect on the financial statement fraud of state-owned companies listed on the Indonesia Stock Exchange. High level of the pentagon fraud on a company leads to a higher indication of financial statement fraud.

Keywords: Financial Economics, Finance, Illegal Behavior

JEL Classification Code: B26, F65, K42

1. Introduction

including the omission of amounts or disclosures in the financial statements, to deceive financial statements users,

Financial statement fraud is an intentional misstatement,

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which leads to losses to various parties. Financial reports are the main means for a company to communicate financial information to outside parties (Jatmiko et al., 2020). The world anti-fraud organization, the Association of Certified Fraud Examiners (2020), classifies fraud based on three categories, namely, asset missappropriation, corruption, and financial statement fraud. Report To The Nation (RTTN) 2020 survey conducted by the Association of Certified Fraud Examiners (2020) shows that, of the three types of fraud, financial statement fraud was a that had the lowest percentage of cases, namely, 10%, but had the highest loss value of \$954,000. This fact proves that financial statement fraud is the most detrimental type of fraud. Also, Indonesia was ranked first out of 16 countries with the number of fraud cases in the Asia Pacific region. Fraud cases mostly occur in the internal company rather than external company environment (Marzuki et al., 2020). Therefore, a good internal control system is needed, so that accounting procedures can be easily directed, monitored and detected in the event of fraud, so that financial reports achieve their objectives and present reliable financial information (Sumaryati et al., 2020). Several cases of fraud that occurred

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in Indonesia, especially in state-owned companies such as the fraud cases of PT Garuda Indonesia (Persero) Tbk and PT Waskita Karya (Persero) Tbk, have also attracted enough public attention. The rise of fraud cases that have occurred in state-owned companies has motivated researchers to research fraud in state-owned companies listed on the Indonesia Stock Exchange (IDX) from 2014 to 2019.

The majority of previous empirical research conducted tests on each element of the fraud pentagon, and showed the unsynchronized results of each element. Thus, the results of the research on each of the elements of the fraud pentagon cannot be generalized to have an effect on financial statement fraud. This study uses factor analysis to consolidate the elements of the fraud pentagon into one factor and make the fraud pentagon an independent variable in order to clarify, generalize, and broaden the understanding of the influence of the fraud pentagon on financial statement fraud. This is also the novelty of this research.

Empirical studies related to the elements of the fraud pentagon such as research conducted by Noble (2019), Puspitaningrum et al. (2019), Rengganis et al. (2019), Siddiq and Suseno (2019), Nanda et al. (2019), Setiawati and Baningrum (2018), Saputra and Kesumaningrum (2017), Apriliana and Agustina (2017), Boyle et al. (2015), reveal different research results and cannot be generalized yet.

This research needs to be done to generalize and broaden the understanding of the effect of the fraud pentagon on financial statement fraud. The urgency of this research can be seen from the phenomenon previously described, that financial statement fraud is the action that causes the most losses. Indonesia is ranked first with the highest number of fraud cases in Asia Pacific, and several fraud cases that have occurred in several state-owned companies lately are the reasons why this research is necessary.

The novelty of this study is the use of factor analysis to consolidate and summarize the five elements of the fraud pentagon into just one factor, namely, the fraud pentagon, which to the knowledge of the researcher, no one else has done to research the effect of pentagon fraud on financial statement fraud. In addition, the rampant fraud cases that have occurred in Indonesia, especially in the state-owned sector, tend to be difficult to disclose thoroughly. Until now, little research has been done to discuss this case, especially using the fraud pentagon theory. The selection of this research period is for six years (2014–2019), namely, because apart from the phenomenon that takes place, the research's sixyear period is the ideal time span to find out if companies are known to have committed fraud.

2. Literature Review and Hypothesis

The theory of fraud was originally put forward by Cressey (1953) through the fraud triangle theory, with three elements that can indicate the occurrence of fraud, namely, pressure, opportunity, and rationality. Wolfe and Hermanson (2004) then developed it into a fraud diamond theory, adding ability as the fourth element of fraud. Horwarth (2011) found elements of competence and arrogance as triggers of fraud, competence replaces the elements of ability in the fraud diamond theory so that there are five elements to become the fraud pentagon theory. Agency theory explains that, when each party has different interests, selfishness on the part of the agent or principal will emerge (Einshardt, 1989). When someone receives pressure, gets opportunities, exercises rationality, has competence and arrogance, it can indicate fraud.

The majority of previous empirical research conducted tests on each element of the fraud pentagon and showed the unsynchronized results of each element. Therefore, the novelty of this study is the use of factor analysis to summarize the five elements of the fraud pentagon into one factor, namely, the fraud pentagon. The selection of this research period is six years (2014–2019); apart from the phenomenon that takes place, the six-year period is the ideal timeframe to find out which companies are known to have committed fraud.

Agency theory states that there is a contractual relationship between the agent and the principal. This theory also explains the existence of agency problems that occur when each party has different goals so that it has the potential to take opportunistic actions that can lead to information asymmetry, and in the end, will have an impact on the good and bad of the company. One of the problems that can arise is fraud, especially financial statement fraud. Financial statement fraud can not only harm stakeholders, but can also harm the company itself and can even lead to bankruptcy. The fraud pentagon theory explains that fraud can be detected through five elements, namely, pressure, opportunity, rationalization, competence, and arrogance.

The first element is pressure. The presence of pressure could lead to committing fraud (Cressey, 1953). This situation can be in the form of internal and external factors in influencing individuals to commit fraud. Previous research has theoretically explained that individuals, in pursuing their interests, will commit fraud to get out of these pressures, for example, in achieving financial targets (Akbar, 2017). The results of this study are similar to those of Noble (2019), Rengganis et al. (2019), Setiawati and Baningrum (2018), which state that pressure has a positive effect on financial statements fraud. Individuals or management will experience pressure to achieve the company's financial targets, with the hope that, if the targets are achieved, management can get bonuses and high income, and this can be achieved if they have maximum performance. The maximum performance here can be achieved by opportunistic actions, namely, financial statement fraud.

The second element is an opportunity. Opportunity could lead to committing fraud (Cressey, 1953). One of these opportunities can arise when there is weak supervision. Research conducted by Apriliana and Agustina (2017), Setiawati and Baningrum (2018), Nanda et al. (2019) found that there was a positive opportunity influence on fraudulent financial reporting. The theoretical conclusion is that to pursue their interests, individuals will have commit fraud if they have the opportunity to do so or when there is weak supervision in an organization/company.

The third element is the rationalization. Rationalization is a justification that appears in the mind of the perpetrator when he commits fraud (Cressey, 1953). The empirical evidence found by Saputra and Kesumaningrum (2017) and Noble (2019) that rationalization proxied by auditor turnover and measured by dummy variables has a positive effect on financial statement fraud. Previous researchers explained that the change of auditors could be considered to eliminate traces of fraud that the previous auditors had found. This tendency encourages companies to replace their independent auditors to cover up fraud in the company. Theoretically, it can be concluded that to fulfill individual interests, rationalization is carried out to cover the perception of fraud that will be carried out so that the individual can avoid the risk of fraud.

The fourth element is competence. Competence is a person's ability to commit fraud (Horwarth, 2011). Competence includes skills, knowledge, basic attitudes, and values that a person has, reflected in their ability to think and act consistently (Santosa et al., 2020). Wolfe and Hermanson (2004) explain that several important things affect a person's competence in committing fraud, including position and intelligence/creativity. Research conducted by Setiawati and Baningrum (2018), Puspita and Yasa (2018), Zamzam et al. (2017) found that competence proxied by a change of directors and measured by dummy variables has a positive effect on financial statement fraud. Wolfe and Hermanson (2004) also argue that changes in the board of directors can cause a stress period that has an impact on opening up opportunities for fraud. The conclusion is that one's position in the organization can provide the ability to create or take advantage of opportunities to commit fraud. Theoretically, it can also be explained that the ability or competence to commit fraud is caused by an internal interest in obtaining many benefits for self-interest.

The fifth element is arrogance. Arrogance is how a person thinks he is capable of cheating (Horwarth, 2011). Research conducted by Tessa and Harto (2016), Bawekes et al. (2018), Puspita and Yasa (2018) found that arrogance has a positive effect on financial statement fraud. Also, Yusof (2016) conducted a study to measure arrogance by assessing the presence of CEOs who have multiple positions both inside and outside the company. Good company performance should not be related to multiple positions of directors. This dual position allows for an increase in fraud.

For example, several of these multiple positions encourage someone to commit collusion and even sacrifice the interests of shareholders. Also, members of the board of directors may suffer from performance problems because they are too busy and unfocused. The above statement is supported by research conducted by Dechow et al. (1996) which shows that fraud related to earnings manipulation is dominated by management and multiple positions by the CEO.

The above explains a positive and direct relationship between the elements of the fraud pentagon and financial statement fraud. The higher the fraud pentagon, the higher the indication of financial statement fraud. A rational human nature, prioritizing his interests (self-interest), tends to do everything he can to fulfill his needs, including by conducting financial statement fraud. The elements of the fraud pentagon in this study will be analyzed by factors and it is hoped that they can become a unified variable, namely the fraud pentagon.

Based on this, the following hypothesis is formulated:

H1: Pentagon fraud has a positive effect on financial statement fraud.

3. Research Methods

The population of this study is all state-owned companies listed on the IDX for the 2014–2019 period. The data used in this study is secondary data obtained from the company's annual financial statements. A purposive sampling technique was used to determine the research sample. The sample in this study were 20 companies over a 6-year study period, so that the total was 120 observations. The measurement of each variable, namely, financial statement fraud is proxied by F-Score; fraud pentagon theory is proxied by each elements such as the pressure is proxied by ROA; the opportunity is proxied by BDOUT; rationalization is proxied by ΔCPA ; competence is proxied by DCHANGE; and arrogance is proxied by CEO (Chief Executive Officer) duality. The research method used is factor analysis and simple linear regression analysis method. The variables analyzed in this study were defined as follows.

Financial statement fraud is proxied by the *F*-Score model. The *F*-Score model is the sum of two variables, namely accrual quality and financial performance (Skousen & Twedt, 2019). The company is known to have committed financial statement fraud if the *F*-Score value below 1.00 indicates a low or normal risk of fraud, an *F*-Score value above 1.00 indicates the risk of fraud is above normal, an *F*-Score value above 1.85 indicates a substantial risk of fraud, and results above 2.45 indicate a high risk of fraud (Rengganis et al., 2019).

Fraud Pentagon Theory was put forward by Crowe Howart in 2011. This theory is a development of the fraud triangle theory put forward by Cressey (1953) and the fraud diamond theory proposed by Wolfe and Hermanson (2004), which explains the elements that cause fraud. In this study,

each element of the occurrence of fraud according to the fraud pentagon theory will be proxied first, then an analysis of the factors that are expected to become one variable is the fraud pentagon, for the definition and proxies of each element will be explained as below. The elements are pressure, opportunity, rationalization, competence, and arrogance.

The proxy for the pressure in this study is financial targets. The financial target is measured by the return on asset (ROA) ratio, which is the ratio used to measure the company's ability to generate profit after tax (net income) and to show how much return on the company's assets. Skousen et al. (2009) stated that ROA will show a significant difference between companies that commit fraud and those that do not. The higher the pressure proxied by the financial target as measured by ROA, the higher the financial statement fraud.

Opportunity measured by ineffective monitoring uses the ratio of the number of independent boards of commissioners (BDOUT). The higher the BDOUT, the more effective the supervision will be, so that the opportunities will decrease which causes financial statement fraud to decrease, and vice versa.

Rationalization is proxied by changing public accounting firms. This study proxies rationalization with a change in public accounting firm (Δ CPA) as measured by a dummy variable where if there is a change in the Public Accounting Firm during the 2014-2019 period it is given code 1, otherwise if there is no change in the public accounting firm during the 2014-2019 period, it will be coded 0.

Competence is proxied by the change of directors (DCHANGE), which is measured using a dummy variable to determine the individual's ability to face the opportunity to commit fraud. DCHANGE is categorized into two categories, namely, if there is a change in the company's board of directors, it will be given code 1 and if there is no change in the company's board of directors, it will be coded 0.

Arrogance is proxied by the CEO duality or CEO who has multiple positions both inside and outside the company. CEO duality (CEODUAL) is measured using a dummy variable, which is divided into two categories, namely, code 1 for companies that included CEO duality, code 0 otherwise.

4. Results and Discussion

Table 1 shows the factorization based on the total variance. When viewed from the total of initial eigenvalue, there is one component that has a value above 1. That is component number 1 with an eigenvalue value of 2.970. Meanwhile, the other four components (namely, 0.956; 0.769; 0.204; and 0.101) have a value below 1. So that from the factorization based on the total variance, one factor is obtained, which is formed from the factor analysis.

Based on Table 2, the regression equation in this study is as follows.

F-Score = -0.009 + 0.381 Fraud Pentagon + e (1)

Table	1:	Total	Variant	Description
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Components	Initial Eigenvalues			Extraction Sums of Squared Loadings			
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	
1	2.970	59.398	59.398	2.970	61.398	61.398	
2	0.956	19.115	78.513				
3	0.769	15.388	93.901				
4	0.204	4.073	97.974				
5	0.101	2.026	100.000				

Table 2: Result of Simple Linear Regression Analysis Test

Model B	Unstandardize	d Coefficients	Standardized Coefficients	4	Sig
	Std. Error	Beta		τ	
(Constant)	-0.009	0.021		-0.457	0.649
Fraud Pentagon	0.381	0.021	0.862	18.501	0.000
Adjusted R Square					0.741
Sig. F					0.000

The hypothesis in this study is that fraud pentagon has a positive effect on financial statement fraud. Based on the results of hypothesis testing, it is found that the fraud pentagon has a positive effect on financial statement fraud, so hypothesis 1 (H1) is accepted. This means that the higher the level of fraud the pentagon has, the higher the indication of financial statement fraud. Pentagon fraud in this study is measured through each of its elements, then a factor analysis is carried out and the result is that all these elements represent one variable, namely the fraud pentagon.

Pressure is measured with ROA, probability is proxied by BDOUT, rationalization is proxied by Δ CPA, competence is proxied by DCHANGE, and arrogance is proxied by CEO duality. The pressure is a condition to commit fraud (Cressey, 1953). This situation can be in the form of internal and external factors in influencing individuals to commit fraud. This study uses ROA to measure financial targets as a proxy for pressure. ROA is the ratio used to measure the company's ability to generate profit after tax (net income) and shows how much return on the company's assets. Skousen et al. (2009) stated that ROA will show a significant difference between companies that commit fraud and those that do not. The ROA generated by companies that commit financial statement fraud tends to be higher than those that do not. The higher the pressure proxied by the financial target as measured by ROA, the higher the indication of financial statement fraud. Previous research has explained theoretically that individuals in fulfilling their interests will commit fraud to get out of these pressures, for example, the pressure to achieve financial targets (Akbar, 2017). The results of this study are in line with those of Noble (2019); Rengganis et al. (2019); Setiawati and Baningrum (2018), which state that pressure has a positive effect on financial statement fraud. Individuals or management will experience pressure to achieve the company's financial targets, with the hope that if the targets are achieved, management can get bonuses and high income, and this can be achieved if they have maximum performance. The maximum performance here can be achieved by opportunistic actions, namely financial statement fraud.

Opportunity leads to committing fraud (Cressey, 1953). One of these opportunities can arise when there is weak supervision, one of which is ineffective monitoring. Ineffective monitoring is a situation where the company does not have a supervisory unit that effectively monitors company performance. Independent commissioners are members of the board of commissioners who meet the requirements of not having an affiliated relationship with controlling shareholders, directors, or other commissioners, not working concurrently with affiliated companies, and understanding the laws and regulations in the capital market (Effendi, 2008). The existence of an independent board of commissioners is expected to improve the supervision of company performance to reduce fraud.

Beasley et al. (2000), Dunn (2004) observed that companies that commit financial statement fraud consistently have fewer outside members on the board of directors than companies that do not commit fraud. This study measures the element of opportunity using effective monitoring with the ratio of the number of independent boards of commissioners (BDOUT). The higher the BDOUT, the more effective the supervision will be so that the opportunities will decrease which causes financial statement fraud to decrease, and vice versa. The results of this study are in line with research conducted by Apriliana and Agustina (2017); Setiawati and Baningrum (2018); Nanda et al., (2019) who found that there was a positive opportunity influence on fraudulent financial reporting. The theoretical conclusion is to fulfill their interests, individuals will have the opportunity to commit fraud if they have the opportunity or when there is weak supervision in an organization/company. Rationalization is a justification that appears in the mind of the perpetrator when he commits fraud (Cressey, 1953). Rationalization is proxied by the change of public accounting firms (Δ CPA). Skousen et al. (2009) revealed that auditor changes led to an increase in the incidence of audit failure and litigation. The auditor is a party who is considered to have an independent attitude to reveal fraud committed by the company. More and more companies that change auditors can be suspected of being an attempt by the company to cover up fraud (Apriliana & Agustina, 2017).

This research proxy's rationalization with changes in public accounting firms (ΔCPA) as measured by dummy variables. The results of this study are in line with research conducted by Saputra and Kesumaningrum (2017) and Noble (2019), which found that rationalization proxied by auditor turnover and measured by dummy variables has a positive effect on financial statement fraud. The change of auditors can be considered to eliminate traces of fraud found by previous auditors (Manurung & Hardika, 2015). This tendency encourages companies to replace their independent auditors to cover up fraud in the company. Theoretically, it can be concluded that to fulfill individual interests, rationalization is carried out to cover up the perception of fraud that will be carried out so that the individual can avoid the risk of fraud.

Competence is a person's ability to commit fraud (Horwarth, 2011). Wolfe and Hermanson (2004) explain that several important things affect a person's ability to commit fraud, including position and intelligence/creativity. The competency element is proxied by the change of directors (DCHANGE) which is measured using dummy variables to determine the individual's ability to face the opportunity to commit fraud. The results of this study are in line with research conducted by Setiawati and Baningrum (2018), Puspita and Yasa (2018), Zamzam et al. (2017), which found that competence proxied by a change of directors and measured by dummy variables has a positive

effect on financial statement fraud. Wolfe and Hermanson (2004) suggest that changes in the board of directors can cause a stress period that has an impact on opening up opportunities for fraud. The conclusion is that one's position in the organization can provide the ability to create or take advantage of opportunities to commit fraud. Theoretically, it can also be explained that the ability or competence to commit fraud is caused by an interest in yourself to get many benefits for self-interest.

Arrogance is how a person think he is capable of cheating (Horwarth, 2011). This attitude arises because of the existence of self-interest in management, which makes arrogance even greater. Arrogance is proxied by CEO duality. CEO duality as a proxy for arrogance as measured by a dummy allows an increase in the occurrence of fraud. The results of this study are in line with research conducted by Tessa and Harto (2016), Bawekes et al. (2018), Puspita and Yasa (2018), which found that arrogance has a positive effect on financial statement fraud. Also, Yusof (2016) conducted a study to measure arrogance by assessing the presence of CEOs who have multiple positions both inside and outside the company. Good company performance should not be related to multiple positions of directors. This dual position allows for an increase in fraud. For example, several of these multiple positions encourage someone to commit collusion and even sacrifice the interests of shareholders.

Agency theory explains that agency problem that occur when each party, either agent or principal, who has different goals, have the potential to take opportunistic actions and can lead to information asymmetry, which can have an impact on the good and bad of the company. One of the problems that can arise from this information asymmetry can be fraud, particularly financial statement fraud. Rational human nature, prioritizing its own in self-interest, the existence of pressure, opportunities, and abilities can be an opening to commit fraud. Moreover, individuals who have high arrogance tend to be able to do everything they can to fulfill their needs, including by conducting financial statement fraud

5. Conclusions

Based on the research results, it was found that pentagon fraud had a positive effect on the financial statement fraud of state-owned companies listed on the IDX for the 2014-2019 period. The higher the pentagon fraud level of a company, the higher the indication of financial statement fraud. So that this research fully supports the fraud pentagon theory.

The suggestion put forward from this study is that this study only uses one proxy for each element of the fraud pentagon theory, therefore further researchers can use other proxies in measuring the fraud pentagon theory other than those already used in this study. Also, investors, further

researchers, or interested parties can use the *F*-Score as a measurement tool in assessing financial statement fraud, because the calculation components of the *F*-Score can be found in financial reports and are considered effective for detect indications of financial statement fraud in the company.

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