The Effect of Fraud Pentagon on Fraudulent Financial Statements: A Meta Analysis

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ARTICLE INFORMATION

Publication information

Research article

HOW TO CITE

DOI: https://doi.org/10.32535/jicp.v6i1.2264

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Received: 21 February 2023
Accepted: 20 March 2023
Published: 27 March 2023

ABSTRACT

This study aims to integrate research results from several journals to ascertain the impact of financial statement fraud (FFS) on fraud pentagon. FFS is an intentional effort by the company to mislead users of financial statements. Fraud pentagon explains the five elements causing FFS. The population in this study is a journal which not included in predatory journal for 2012-2022. There are 16 samples produced through purposive sampling. Secondary data for meta analysis techniques is produced through observation techniques in Seforra and Google Scholar. The results of integration show that the pressure, opportunity, capability and arrogance have positive effect on FFS as evidenced through (r) calculating > r table. While the rationalization variable has a negative effect on fraud financial statements.

Keywords: Arrogance, Beneish M-Score, Capability, Fraud Pentagon, Opportunity, Pressure, Rationalization
INTRODUCTION

The financial records provided by the company do not rule out the possibility of misstatement. Misstatements can happen as a result of error or fraud. It is normal for mistakes to occur if they are made accidentally. The factor that differentiates between error and fraud is the act that underlies it. It will be a serious problem if the mistake is an intentional mistake so that it can be concluded as fraud. The information presented in the financial statements is very important for investors to make decisions. This can be a motivation and encouragement for management to caused fraud in financial reports, where management tries to cover up the real situation so that the performance of the company looks good. Much research has been done on the impact of the fraud pentagon on FFS. The results of these studies are still diverse. The various research results will be described in the graph below.

Figure 1. Research Differences

![Description Of Research Results](image)

Source: Processed Data (2023)

The pressure variable has 8 articles of which 3 articles show insignificant results with a level of 37.5% such as article Indriani and Rohman (2022); Yuvin and Sormin (2022) and 5 articles showing sig results with a level of 62.5% including the article from Mumpuni and Jatiningsih (2020); Widyaningsih, Himmawan, and Nugroho (2022).

There were 9 articles for the opportunity variable, of which 6 articles showed insignificant results with a level of 66.7% including the article by Ghandur, Sari, and Anggraini (2019), there are 3 articles showing sig results with a level of 33.3% articles including Rukmana (2018); Jaunanda and Silaban (2020).

The rationalization variable has a total of 11 articles including 10 articles with an unsignificant result of 90.9% including Aprilia (2017); Rifaldi and Indrabudiman (2022). The articles with a sig result of 1 article of 9.1% include articles belonging to Basmar and Ruslan (2021).

The total number of articles for the capability variable is 13 articles, of which 7 articles with insignificant results at the 53.8% level include articles belonging to Amarakamini and Suryani (2019); Anggreini and Himmawan (2022). There are 6 articles with sig results at the 46.2% level including articles belonging to Rukmana (2018) and Jaunanda and Silaban (2020).

The last variable, namely arrogance, has a total of 10 articles, of which 9 articles have insignificant results with a 90% rate, including articles belonging to Sanulika and
Hidayati (2021); Silaban and Zainal (2021); and Widyaningsih et al. (2022). Articles with sig results of 1 article with a 10% rate include articles belonging to Rukmana (2018).

Therefore, with almost the same issues raised, but different types of research, sampling techniques, and data analysis, it is necessary to carry out a quantitative evaluation of the findings from several main studies using meta-analysis to synthesize and assess relevant empirical studies on a theme to validate substantial research that has been carried out in a study.

LITERATURE REVIEW

Agency Theory
Agency theory is an idea of organizational control based on beliefs on the separation of ownership by management will lead to the potential that the shareholder’s desires will be ignored (Lumapow, 2018). Agency theory is the development of a theory that studies the design of contracts between principals and agents (Scott, 2019). The contract can work cooperatively or not cooperatively. Contracts that do not work cooperatively are caused by disparities between the principal's and the agent's interests. The agent will not work hard unless the agent is sufficiently motivated due to the moral hazard problem in management.

Gone Theory
The GONE theory is a theory that states the reason for the perpetrator to practice fraud. Bologna (1993) explained the elements contained in the GONE theory, namely greed, opportunities, need and exposure as the root causes of fraud.

Benford’s Law
Benford (1938) found a pattern where small numbers (such as 1, 2, or 3) have a higher frequency of occurrence than the numbers 7, 8, or 9. The frequency of occurrence of each number in Benford’s law serves as a guide for the expected frequency of an observation. Benford’s Law was also discussed by one of the astronomers in the 1800s, Simon Newcomb. According to Newcomb (1881), the first page of a logarithm book in the library was in worse condition than the last page. This theory explains that the probability of an error occurring will be higher if the first digit of a number is smaller.

Murphy’s Law
Edward A. Murphy, Jr. in his sentence said that “anything that can go wrong will go wrong" means that something that can go wrong, an error will occur, so vigilance is needed. Murphy's law is often applied by doing repeated simulations to look for loopholes for possible errors. Despite the prefix "Law" (Law), Murphy's law is not a scientific law that is accompanied by research evidence in the form of calculations, but is born from observation and experience and is experienced by every human being without realizing it (Hibban, 2007). In detecting financial statement fraud, Murphy's law reminds us that a number basically has the potential to contain errors.

Development of Fraud
Fraud theory has developed over time. The original theory which discusses the 3 elements that cause someone to commit fraud is discussed by Cressey in the fraud triangle theory. Cressey (1953) explained that there are 3 main motivations for someone to commit fraud, namely Non-shareable problems (Pressure) can trigger management to try all means including by committing fraud and manipulating financial reports to make it look perfect so that the performance of the business is considered favorably. In this study, FFS motivated by pressure will be seen through financial targets (ROA). Consequently, opportunity is a situation with weak internal control of an
organization. The opening of this opportunity can also make individuals and groups who previously had no motive finally be involved in fraud. Opportunity in this research will be proxied by the ineffectiveness of supervision. Cheating involves lying to oneself that what they are doing is justified. The existence of rationalization is considered as a verbalization intended to make one's behavior more understandable to others (Cressey, 1953). This attitude of justification can be described as the assumption that the deception committed is a reasonable act. In this study, rationalization uses auditor change proxies.

Wolfe and Hermanson (2004) then developed a new theory called the fraud diamond by incorporating a fraud triangle component, namely Capability is the personality and skills of a person who plays a crucial role in realizing fraud with the other three elements in the fraud triangle. The addition of these elements because pressure and rationalization can be used to encourage and interest someone to commit fraud, while opportunities can provide them with the means to do so. However, cheating will not occur without the skills to recognize opportunities and take advantage of them.

The high cases of fraud indicate that someone who commits fraud is not only influenced by the four factors mentioned in the fraud diamond theory. Horwath refined the existing theory based on this case and added an element of Arrogance. Horwath (2011) explains that an attitude of superiority is called arrogance, where the person believes he is exempt from that internal control. The number of CEO portraits that appear in an organization's annual report can indicate the level of arrogance or superiority that the CEO has so that they think they can influence all policies in the company. In this study the quantity of CEO photos in the annual report serves as a measure of arrogance. Over time, this theory continues to be developed following the times and has now become six elements that can underlie someone in committing fraud known as the Hexagon Theory.

**Figure 2. Fraud Pentagon Scheme**

Source: Horwath (2011)

**Fraudulent Financial Statement**

Financial statement fraud is the deliberate omission of substantial information from the financial statements or the making of material misstatements therein (ACFE Indonesia, 2016). Fraudulent financial reporting can be carried out by means of manipulation, misrepresentation and intentional misapplication (AICPA, 2019). There are several ways to measure fraud in financial statements, one of which is by using the Beneish M-Score.
Beneish M-Score
The Beneish model is designed to detect distortions in financial statements that can result from manipulation of financial statements or other things that encourage companies to carry out such manipulation or fraud (Beneish, 1999). Beneish M-Score can correctly identify most cases of accounting fraud, with a percentage of 71% based on research by Beneish, Lee, and Nichols (2013). However, the Beneish M-Score is a probabilistic model for detecting financial statement fraud. Thus, one of its drawbacks is that fraud cannot be detected with 100% precision. In addition, this model can only estimate the financial information of public companies, meaning that this model cannot be used for private or non-public companies. Another limitation is that revenue manipulation can only be detected in overstatements rather than understatements.

Meta Analysis
Meta-analysis is a quantitative analysis and uses a large amount of data and applies statistical methods from several studies with the aim of integrating the results to understand the rapidly growing research literature (Glass, 1974). According to Makowski, Piraux, and Brun (2019), technique for analyzing knowledge synthetically is meta-analysis by combining two approaches, namely, Systematic Literature Review (SLR) and statistical analysis.

RESEARCH METHOD
This study uses meta-analysis to integrate the influence of pentagon fraud on financial statement fraud in Indonesia. By taking the results of research from several journals in SeforRa and Google Scholar using the purposive sampling method, 16 samples have met the criteria. The sample used by the researcher is a sample that can represent the population with the following criteria:

Table 1. Sample Selection Process

<table>
<thead>
<tr>
<th>No.</th>
<th>Criteria</th>
<th>Amount</th>
<th>Accumulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Journal research on the topic of the influence of pentagon fraud on financial statement fraud in Indonesia (search through the SeforRa website until November 30, 2022)</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>2.</td>
<td>Journal research on the topic of the influence of pentagon fraud on financial statement fraud in Indonesia (search via Google Scholar until November 30, 2022)</td>
<td>300</td>
<td>800</td>
</tr>
<tr>
<td>3.</td>
<td>Research that does not test independent variables such as return on assets, ineffective monitoring, auditor change, director change and the frequent number of CEO’s pictures</td>
<td>(566)</td>
<td>234</td>
</tr>
<tr>
<td>4.</td>
<td>Research where the dependent variable does not use the Beneish M-Score</td>
<td>(113)</td>
<td>121</td>
</tr>
<tr>
<td>5.</td>
<td>Journals whose complete data are not available in this case do not present t test tables</td>
<td>(104)</td>
<td>17</td>
</tr>
<tr>
<td>6.</td>
<td>The journal is registered in a predatory journal or a blacklisted journal</td>
<td>(1)</td>
<td>16</td>
</tr>
</tbody>
</table>

Number of journals selected as samples (2012-2022 period) | 16

Source: Processed Data (2023)

The stages of the meta-analysis technique in this study follows Angeline (2017) procedure:
1. Convert or transform statistics into a common measure, namely \( r \). The effect size (\( r \)) will be used for accumulation, comparison and integration. Formula: 
\[
    r = \sqrt{\frac{t^2}{t^2 + df}}
\]
2. Accumulating effect sizes and calculating the average correlation coefficient (\( \bar{r} \)) with the formula:
\[
    \bar{r} = \frac{\Sigma (NIi)}{\Sigma NI}
\]
3. Calculate the total observed variance with the formula:
\[
    S_r^2 = \frac{\Sigma NI(ri - \bar{r})^2}{\Sigma NI}
\]
4. Calculating the sampling error variance with the formula:
\[
    S_e^2 = \left(1 - \bar{r}^2\right) \frac{K}{\Sigma NI}
\]
5. Calculating the true population variance with the formula:
\[
    S_p^2 = S_r^2 - S_e^2
\]
6. Hypothesis Testing carried out using the appropriate approach to the Mann Whitney Test. One of them is the Z test at the 95 percent confidence interval (\( \alpha \)) with the following formula:
\[
    [\bar{r} - S_p^2 \cdot Z_a; \bar{r} + S_p^2 \cdot Z_a] = [\bar{r} - S_p^2(1,96); \bar{r} + S_p^2Z(1,96)]
\]

Note: \( r \) = effect size, \( t \) = t statistic, \( df \) = degree of freedom, \( \bar{r} \) = mean correlation, \( NIi \) = amount sample of each research, \( ri \) = effect size of each research, \( S_r^2 \) = the observed total variance, \( S_e^2 \) = sampling error variance, \( K \) = the number of studies in the analysis, \( S_p^2 \) = the true population variance

The criteria to accept or support the hypothesis using a 5% degree of confidence, if \( \bar{r} > r_{table} \), the hypothesis is not rejected, indicating that there is a significant relationship between the independent and dependent variables. The greater the value of \( r \) (closer to number 1), the stronger the influence of the independent variables on the dependent variable. Conversely, the smaller the correlation value (closer to 0), the weaker the influence of the independent variable on the dependent variable (Sarwono, 2011).

## RESULTS

The analysis of studies examining return on assets, ineffective monitoring, auditor change, director change and arrogance yielded a mean correlation (\( \bar{r} \)) that was greater than \( r_{table} \), so that the five variables showed a significant effect.

Table 2. Summary of Meta Analysis Hypothesis Testing Results

<table>
<thead>
<tr>
<th>H</th>
<th>Sample/Study</th>
<th>Dependent Variable</th>
<th>Independent Variable</th>
<th>Mean Correlation (( \bar{r} ))</th>
<th>r table</th>
<th>Results</th>
<th>Desc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>1408 / 8</td>
<td>Fraudulent Financial Statement (M-Score)</td>
<td>Financial Target</td>
<td>0.1235</td>
<td>0.0522</td>
<td>Significant (weak)</td>
<td>Supported</td>
</tr>
<tr>
<td>H2</td>
<td>1155 / 9</td>
<td>Fraudulent Financial Statement (M-Score)</td>
<td>Ineffective Monitoring</td>
<td>0.1029</td>
<td>0.0577</td>
<td>Significant (weak)</td>
<td>Supported</td>
</tr>
<tr>
<td>H3</td>
<td>1677 / 11</td>
<td>Fraudulent Financial Statement (M-Score)</td>
<td>Auditor Change</td>
<td>0.0553</td>
<td>0.0479</td>
<td>Significant (weak)</td>
<td>Supported</td>
</tr>
<tr>
<td>H4</td>
<td>1850 / 13</td>
<td>Fraudulent Financial Statement (M-Score)</td>
<td>Director Change</td>
<td>0.1016</td>
<td>0.0456</td>
<td>Significant (weak)</td>
<td>Supported</td>
</tr>
<tr>
<td>H5</td>
<td>1421 / 10</td>
<td>Fraudulent Financial Statement (M-Score)</td>
<td>Frequency Number of CEO's Picture</td>
<td>0.0566</td>
<td>0.0520</td>
<td>Significant (weak)</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Source: Processed Data (2023)
The results of a meta-analysis of financial target which analyzed 8 studies indicated that pressure significantly influences fraudulent financial statements, but has a weak correlation. This can be seen from the mean correlation ($\bar{r}$) = 0.1235 with a 95% confidence interval between 0.1142; 0.1327.

The existence of a correlation between the ineffectiveness of supervision of fraudulent financial reporting is shown by the results of a meta-analysis of 9 studies obtaining a mean correlation ($\bar{r}$) = 0.1029 with a 95% confidence interval between 0.0955; 0.1102. The results of a meta-analysis of ineffective monitoring indicated that opportunity significantly influences fraudulent financial statements but has a weak correlation.

The effect of changing auditors to fraudulent financial reporting involved 11 studies for meta-analysis with the mean correlation ($\bar{r}$) = 0.0553, where the 95% confidence interval was between 0.0594; 0.0512. These findings provide evidence that rationalization has an effect on fraudulent financial statements, but has a weak correlation.

The meta-analysis for the variable of director change used 13 studies with the mean correlation ($\bar{r}$) = 0.1016, where the 95% confidence interval was between 0.1075; 0.0957. These results prove that the capability has a significant effect but weak correlation on fraudulent financial statements.

Analysis of 10 studies examining the frequency of CEO photos appearing on financial statement fraud, yielded a mean correlation ($\bar{r}$) = 0.0566 with a 95% confidence interval between 0.0572; 0.0559. This proves that there is a significant effect of the frequency of CEO photos appearing on financial statement fraud with a weak correlation.

**DISCUSSION**

The results of this study conclude that pressure proxied by Return on Assets (ROA) affects fraudulent financial reporting. If the setting of financial targets differs greatly from the previous year, managers will find it difficult to achieve these targets and commit acts of fraud. If viewed from the point of view of setting financial targets that are not too much different from the previous year, there is a possibility that these financial targets can still be achieved by managers. So that managers do not need to manipulate financial reports. The two opinions show different effects between financial targets on fraudulent financial statements. Depending on how high the set financial targets can cause different motives.

Opportunity proxied by ineffectiveness of supervision has an effect on fraudulent financial reporting. When viewed from the context of the effective performance of the independent board of commissioners, financial statement fraud can be minimized thanks to the strict supervision of the independent board of commissioners. This is because the increasing number of independent commissioners will increase the company's operational supervision so that fraud against financial reports will be low. However, if it turns out that the performance of the independent board of commissioners is ineffective, the more independent commissioners in the company, the more difficult it will be to find effective monitoring methods within the company so that the indications of fraudulent financial statements are also getting bigger. Thus it can be concluded, although the ineffectiveness of supervision is equally high, the effect on fraudulent financial statements can show different results depending on the effectiveness of the performance of the independent board of commissioners.

There is an influence between auditor change and financial statement fraud. If the company changes auditors too often, this can indicate fraudulent financial reporting.
The company tries to cover up fraud by replacing the old auditor who may already have findings on problematic accounts. If a company changes auditors at a normal frequency, this is done because the company complies with government regulations regarding auditor changes. Companies that comply with this rule have no reason to hide the existence of fraudulent financial statements. The results of this study may indicate that even though auditor turnover is both high, there are differences in the results of fraudulent financial statements caused by how often companies change auditors, whether the turnover is still at a normal frequency or not.

There is an influence between the variables of the change of directors on fraudulent financial statements. If seen from the way the replacement of directors is not in accordance with the provisions of the GMS, the replacement of directors is intended to appoint a more capable director in place of the outgoing one in committing fraud. If the company changes directors according to the provisions of the GMS, the company is not trying to cover up fraud. The change of old directors to new directors who are considered better is expected to improve the company's performance. The existence of two different opinions, confirms that even though the turnover of directors is equally high, the resulting output may differ depending on how the turnover of directors is carried out.

There is an influence between the frequent number of CEO’s pictures and financial reporting fraud. The photos that appear in the annual report are photos of activities and prove that the CEO is involved in every activity that is successfully carried out by the company. If the CEO does not have a vision for the future, he feels that he will only look competent in leading the company if the company is always in good condition. Then the CEO will do everything possible including by cheating to make the financial reports look good. However, if the CEO has a long enough vision for the future, the CEO will feel that the photo on display in the annual report shows his reputation. So that he will try to maintain his reputation and avoid actions that will be detrimental to the company and himself. The difference in the context of the two statements shows that even though the frequency of CEO photos appearing is equally high, this does not guarantee the same output.

CONCLUSION

Based on the results of research and discussion through the integration of several articles discussing the effect of pentagon fraud on fraudulent financial statements, the researchers concluded that the results of the integration of several studies through meta-analysis proves the influence of pressure, opportunity, rationalization, capability and arrogance on fraudulent financial statements.

ACKNOWLEDGMENT

N/A.

DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interest.

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