Abstract. State-Owned Enterprises (SOEs) in Indonesia are important economic actors in the national economy. However, SOEs have problems with accountability and financial transparency. SOEs problems ultimately lead to high economic costs and reduce efficiency. This study aims to determine the practice of fraudulent financial statements in SOEs. The method used in this research is descriptive. Data was obtained using observation and documentation of the Garuda Indonesia Group company which is a major airline in Indonesia. In addition, data were obtained from the Indonesia Stock Exchange (IDX), which consists of 36 samples. This study analyzes the financial statements from 2010 to 2018 as an independent variable. The dependent variable is measured by the elements of the pentagon fraud theory (pressure, opportunity, rationalization, competence, and arrogance) to detect fraudulent financial statements. Data analysis uses Kernel regression parameters, namely R-squared, predictive sign, and standard error, to detect earnings management in the context of the Garuda Indonesia Group. The results show that all the elements of the pentagon fraud theory affect financial statements. The study results show that the pentagon theory of fraud can be relied upon to detect misreporting in financial statements of SOEs. Furthermore, the study results are expected to be considered by related parties to be better prepared when detecting financial statement fraud using the fraud pentagon theory model.

Keywords: Financial Statement Fraud; Fraud Pentagon Theory; Cheat Triangle; Fraud Triangle; Revenue Management; State-Owned Enterprise; SOE; Public Company; Motivation; Manipulating; Misreporting

JEL Classifications: F30; F33; F50; F51; A10

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Застосування теорії «пентагон шахрайства»: розуміння мотивації керівників маніпулювати фінансовою звітністю державного підприємства

Анотація. Державні підприємства (ДП) в Індонезії є важливими економічними суб’єктами національної економіки. Проте держпідприємства мають проблеми з підзвітністю та фінансовою прозорістю. Проблеми ДП зрештою призводять до високих економічних витрат та зниження ефективності. Наше дослідження спрямоване на визначення практики шахрайських фінансових звітів у державних підприємствах. Метод, використаний у цьому дослідженні, має описовий характер. Дани було отримано з використанням спостережень і документації компанії Garuda Indonesia Group. Окрім того, було отримано дані з Індонезійської фондової біржі (IDX). Вибірка становила 36 зразків. Ми проаналізували фінансову звітність з 2010 до 2018 року як незалежну змінну. Залежна змінна вимірюється елементами теорії «пентагон шахрайства» (тиск, можливість, раціоналізація, компетентність і зрозумілість) для виявлення шахрайських фінансових звітів.

Результати дослідження свідчать, що всі елементи теорії «пентагон шахрайства» впливають на фінансову звітність. Результати дослідження показують, що на пентагональну теорію шахрайства можна покластися для виявлення маніпулювання у фінансовій звітності державних підприємств.

Ключові слова: шахрайство із фінансовою звітністю; теорія «пентагон шахрайства»; п’ятикутник шахрайства; читерський трикутник; трикутник шахрайства; управління доходами; державне підприємство; ДП; публічна компанія; мотивація; маніпулювання.

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Применение теории «пентагон мошенничества»: понимание мотивации руководителей манипулировать финансовой отчетностью государственного предприятия

Аннотация. Государственные предприятия (ГП) в Индонезии являются важными экономическими субъектами в национальной экономике. Однако у госпредприятий есть проблемы с подотчетностью и финансовой прозрачностью. Проблемы ГП в конечном итоге приводят к высоким экономическим затратам и снижению эффективности. Наше исследование направлено на определение практики мошеннических финансовых отчетов в государственных предприятиях. Метод, использованный в данном исследовании, носит описательный характер. Данные были получены с использованием наблюдений и документации компании Garuda Indonesia Group. Кроме того, были получены данные с Индонезийской фондовой биржей (IDX). Выборка составила 36 образцов. Мы проанализировали финансовую отчетность с 2010 по 2018 год как независимую переменную. Зависимая переменная измеряется элементами теории «пентагон мошенничества» (давление, возможность, рационализация, компетентность и высокомерие) для обнаружения мошеннических финансовых отчетов. Результаты исследования показывают, что все элементы теории «пентагон мошенничества» влияют на финансовую отчетность. Результаты исследования показывают, что на пентагональную теорию мошенничества можно положиться для выявления искажений в финансовой отчетности государственных предприятий.

Ключевые слова: мошенничество с финансовой отчетностью; теория «пентагон мошенничества»; пятиугольник мошенничества; читерский треугольник; триугольник мошенничества; управление доходами; государственное предприятие; ГП; публичная компания; мотивация; манипулирование.
1. Introduction and Brief Literature Review

Asymmetry information provides chances for opportunistic actions in information disclosure, such as fraud, violations, and illegal practices (Martins & Júnior, 2019).

There are different dimensions and approaches to study the reasons, risks, motivation and consequences of fraudulent actions in management. To name a few, there are theoretical and practical studies by: Dragomir, Dumitru and Feleagă (2021), Elsas (2008), Dan Yang et al. (2017), Austin et al. (2021) who investigated manipulation in state-owned enterprises. Accounting and financial fraud and managerial manipulation are opened up in the studies by Lisic et al. (2015), Guedhami and Pittman (2011), Majeed and Yan (2021), Norman et al. (2011), Johnson, Grazioli and Jamal (1993), Braun (2000), Murphy (2012), Dellaportas (2013), Greenwood (2015).

Let us concentrate more precisely on subject of our study. For example, the company provides favorable information to external investors through dividend payments, and investors use that information to reassess the company’s cash flow in its investment decisions. Moreover, financial fraud is straightforward when the internal controls system is weak (Qiu et al., 2019). Fraud cases that occur in Indonesia involve many organizations and companies, not least so-called SOEs. Given the number of SOEs in Indonesia that reaches hundreds of companies, its assets reach hundreds of trillions of rupiah. The scope of business is classified as strategic, making SOEs have a dominant role in the Indonesian economy. However, SOEs are perceived as inefficient governance, as they have many agency problems (Wang et al., 2021; Y. Zhang, 2021). Inefficient governance is caused by the excessive dependence of SOEs on government support (Yuan et al., 2021). Therefore, it is not surprising that SOEs are in the public spotlight due to the many fraudulent practices conducted by manipulating financial statements. Such characteristics of SOE management create implicit bias from the public (Chmarkh, 2021). The public perceives that SOEs are not managed professionally, so there is a very high investment risk.

The problem that often occurs in SOEs in Indonesia is accountability. The principle of accountability is shallow due to a lack of transparency. Generally, the low level of SOE transparency is caused by common control from the government (Li et al., 2019; Ye et al., 2021; Yin & Zhang, 2019). Weak government control functions are the leading cause of fraud or manipulation (Lentner et al., 2019). The elite management position of SOE is not a professional but a political position (Harymawan et al., 2020). This leads to lower transparency of SOEs and creates opportunities for corruption and collusion (Apriliyanti & Kristiansen, 2019). One of the state-owned companies in Indonesia that are listed as a red plate company is Garuda Indonesia, a major airline in Indonesia. The Government of Indonesia privatized Garuda Indonesia Group in 1990 to improve its performance (Rakhman, 2017).

The case of Garuda Indonesia’s financial report unprincipled practice was revealed in early 2019. This case of fraud and financial irregularities caused losses for Garuda Group companies. The act of fraud committed by management is manipulating financial statements, commonly referred to as fraud. The fraudulent actions of financial statements are a reflection of the decrease in management commitments. Fraud in SOEs generally occurs for politicians and public officials (Apriliyanti & Kristiansen, 2019). Financial statement fraud is negligence and deliberate error in preparing financial statements. That is the presentation of financial statements that are not under the General Grateful Accounting Principles. Fraudulent acts include asset misappropriation, corruption, and misrepresentation of financial statements. The behavior of speculation conducted by the manager in the act of fraud aims to achieve a specific goal which is not oriented to the investor’s goal. Such speculation behavior is known as Earning management. Earning management practices are used to improve the job performance of management in controlling the company’s finances. Job performance in providing stable profits to shareholders reflects management’s ability to anticipate their tasks (Afshar & Moradifar, 2021). However, research about aspects that motivate Garuda Group management’s behavior in conducting fraudulent practices is still minimal.

The function of financial statements is significant for shareholders in investment decision-making, including investments in SOEs. However, management’s fraudulent practice of manipulating financial statements can be detrimental to shareholders. Therefore, it is not surprising that SOEs are in the public spotlight due to the many fraudulent practices carried out through manipulating financial statements on the organization. Based on this argument, the research on the motivation
of management to commit fraud on SOEs is important. Thus, the purpose of our study is to investigate what factors encourage management to manipulate financial statements based on the pentagon fraud theory by Crowe (2011) which is the development of the fraud triangle and fraud diamond theories and Kernel regression method.

2. Research Methods

The method used in this research is descriptive. Data was obtained using observation and documentation of the Garuda Indonesia Group company. In addition, data were obtained from the Indonesia Stock Exchange (IDX), which consists of 36 samples. This study analyzes the financial statements from 2010-2018 as an independent variable. The dependent variable is measured by the theory of elements of the fraud pentagon theory (pressure, opportunity, rationalization, competence, and arrogance) to detect fraudulent financial statements. Data analysis uses Kernel regression parameters, namely R-squared, predictive sign, and standard error to detect earnings management in the context of the Garuda Indonesia Group. The results show that all the fraud pentagon theory (pressure, opportunity, rationalization, competence, and arrogance) affect financial statements.

Capital markets operate efficiently when market participants, including investors and creditors, have confidence in their published financial statements and audit functions. The increase in the number of submissions and fraud in financial statements by large corporations has undermined public confidence in the financial reporting process and auditing functions. Honesty, objectivity and independence are some of the salient features of the accounting profession. Public trust in the auditor’s judgments is the cornerstone of the accounting profession. Various actions by Congress (such as the Sarbins-Axley Act), lawmakers (the Securities and Exchange Commission), and the accounting profession (the Public Accounts Oversight Board and the American Association of Certified Public Accountants) to restore public confidence in financial statements and relevant audits have been performed.

The F-Score variable components include two items presented in the financial documents: accrual quality and financial performance. Therefore, the F-Score pattern is formulated as the following:

$$F\text{-Score} = Economic\ Indicator + RSST\ Accrual$$ \hspace{1cm} (1)

Kernel regression is a technique for computing the assessments of the dependent anticipation of an arbitrary factor utilizing Kernel operations. Another approach in this nonparametric regression method utilizes an approach known as Kernel smooth, which employs a weighted average of the parameters. The Kernel regression pattern for the one separate factors is as follows:

$$Z_j = N(X_j) + e_j \hspace{1cm} j = 1,2,3,... ,$$ \hspace{1cm} (2)

where:
- $Z_j$ is a separate factor;
- $N(X_j)$ is a regression pattern;
- $e_j$ is an error.

The unknown density function $f$ is estimated employing the Kernel method based on a random research sample. Kernel $K$ is defined in the formula below:

$$K_h(x) = \frac{1}{h} K\left(\frac{x}{h}\right),$$ \hspace{1cm} (3)

where:
- $K$ and $h$ are the Kernel function bandwidth, respectively.

The Kernel refinement approach (Kernel smooth) relies heavily on Kernel functionality and bandwidth. There are three types of Kernel estimation. The Kernel estimate used is by Nadaraya Watson, which can obtain a graph close to the actual data.
3. Results and Discussion
The calculation results of the $F$-Score for our research is presented in Table 1.

Table 1: 
Results of the $F$-Score research

<table>
<thead>
<tr>
<th>Factor</th>
<th>Observed</th>
<th>Average</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSCORE_num</td>
<td>38</td>
<td>13.97285</td>
<td>59.02268</td>
<td>0</td>
<td>334.85</td>
</tr>
<tr>
<td>LEV_num</td>
<td>38</td>
<td>62.95966</td>
<td>23.59316</td>
<td>2774</td>
<td>97.15</td>
</tr>
<tr>
<td>ACHANGE_num</td>
<td>38</td>
<td>45.89564</td>
<td>33.00370</td>
<td>10.42</td>
<td>97.77</td>
</tr>
<tr>
<td>ROA_num</td>
<td>38</td>
<td>45.89278</td>
<td>33.00370</td>
<td>10.42</td>
<td>97.77</td>
</tr>
<tr>
<td>BDOUT_num</td>
<td>38</td>
<td>45.89278</td>
<td>85.24703</td>
<td>1</td>
<td>3.25</td>
</tr>
<tr>
<td>AUD_num</td>
<td>38</td>
<td>2</td>
<td>0.96</td>
<td>2</td>
<td>3.05</td>
</tr>
<tr>
<td>CPA_num</td>
<td>38</td>
<td>1.28100</td>
<td>45.42568</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>CHANGEDIREC~m</td>
<td>38</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>CEOPI_num</td>
<td>36</td>
<td>5.00056</td>
<td>8.035610</td>
<td>1</td>
<td>35</td>
</tr>
</tbody>
</table>

Source: Compiled by the authors

Explanations of the Kernel regression analysis results for the pentagon fraud theory are as following:
The mean value obtained from the $F$ Score is 14.57, the max value is 333.83.
The mean value obtained from the Lev is 0.63, the maximum value is 0.97, the min value is 0.27.
The mean value obtained from Exchange is 46.28, the max value is 97.69, the min value is 10.42.
The mean value obtained from the ROA is 46.28, the max value is 97.69, the min value is 10.42.
The mean value obtained from BDOUT is 0.96, the max value is 3.05, the min value is 0.1.
The mean value obtained from AUD is 2, the max value is 2, the min value is 1.
The mean value obtained from the CPA is 1.27, the max value is 2.
The mean value obtained from CHANGEDIREC is 1, the max value is 1.
Finally, the mean value is obtained from CEOPI of 4.97. The max value is 32.
The calculation results of the Kernel regression analysis method and the pentagon theory is shown in Table 2.

Table 1: 
Np Kernel regression analysis method and the pentagon fraud theory

<table>
<thead>
<tr>
<th>Bandwidth</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEV_num</td>
<td>2798866</td>
</tr>
<tr>
<td>ACHANGE_num</td>
<td>2.78e+08</td>
</tr>
<tr>
<td>ROA_num</td>
<td>7981815</td>
</tr>
<tr>
<td>BDOUT_num</td>
<td>3506886</td>
</tr>
<tr>
<td>CPA_num</td>
<td>6.84e+07</td>
</tr>
<tr>
<td>CEOPI_num</td>
<td>4.97</td>
</tr>
<tr>
<td>Local-linear regression</td>
<td>Number of obs: 38</td>
</tr>
<tr>
<td>Kernel: epaneknikov</td>
<td>E (Kernel obs): 38</td>
</tr>
<tr>
<td>Bandwidth: improved AIC</td>
<td>R-squared: 0.7966</td>
</tr>
<tr>
<td>FSCORE_num</td>
<td>1.457.225</td>
</tr>
</tbody>
</table>

Note: Effect estimates are averages of derivatives.

Source: Compiled by the authors

$R$-squared is also the coefficient of determination which explains how far independent data can explain the dependent data. $R$-squared has a value between 0-1, provided that the closer to number one means the better. For example, the $R$-squared value obtained from Kernel regression is 0.8169, which means that the regression value of 81% produces a good form of regression. If the $R$-squared is 0.8169, it means that the independent variable can explain 81% of the distribution of the dependent variable. The remaining 19% cannot be explained by independent variables or variables outside the independent variables (error component). Hence, it is not strange if the $R$-squared value is small, meaning that the error component is large.

Investors pressure management to run the company efficiently to increase shareholder wealth (Teschner & Paul, 2019). Pressure comes from parties with interest in the company, who demand the company to present all financial and non-financial information for the benefit of each stakeholder (Ulupui et al., 2020). External pressures encourage management to restructure business strategies to conform to external parties’ behavior (J. Zhang et al., 2020). The business model is a projection of the company’s strategy in value chain creation and operational management (Ayaganova et al., 2019). Each business sector simultaneously impacts the country’s economy.
(Komariah et al., 2020). The lower anticipation strategy for investors in fraud will create opportunities for fraud (Levi & Doig, 2020). Rationalization is an individual’s motivation to make decisions to overcome the problem of transaction security and market representation (Schubert, 2021). Individuals can adapt to changes in the social environment through rationalization, and every rationalization has its consequences (Kravchenko, 2021). Rationalization in economic decision-making can result in individuals having the least negative effect on themselves and their environment (Allami & Barzegar, 2020; Ke & Lai, 2018; Turbin, 2020). External and social pressures affect the agent’s competence in communicating information effectively (Mighani & Moghadam, 2019). The communication competence of an agent is needed in providing financial information to stakeholders (Estaji & Rahimi, 2018; Keisala et al., 2018). Competence results from ability, skill, personality, and motivation to achieve achievement and success repeatedly (Verdín, 2021; Zelesniack et al., 2021). Arrogance is considered a negative trait when a person is obsessed with making his demands excessively (Jain et al., 2018). Financial statement fraud is an intentional omission and error in the preparation of financial statements, the presentation of which is not in accordance with Generally Accepted Accounting Principles. Arrogant people don’t care about other people’s opinions. They think what they are doing is the best choice for all (Day et al., 2020). Responsibilities are sidelined due to work commitments, so the role they play in society is an economic constraint (Jumintono et al., 2018).

The research also shows that regardless of financial leverage, profitability, asset composition, liquidity, efficiency, size, growth and overall financial situation, there is a positive and significant relationship between the auditor’s tenure and the possibility of fraud in the financial statements. One possible reason is that the long-term relationship between the client and the auditor damages the auditor’s independence and therefore has a negative effect on the quality of the audit performed and consequently on the quality of the accounting information reported.

The factors of Pressure, opportunity, rationalization, competence, and arrogance are proven to affect fraudulent financial statements. This study produces results expected to contribute to developing theoretical concepts, criticizing management policies related to the Garuda Indonesia Group, and developing research methods that are usually carried out using quantitative methods. It is hoped that this study can benefit users of financial statements, especially companies that are part of the Garuda Indonesia group, one of which is to be a consideration for management which is an agent and responsible towards the shareholders. In addition, investors can use it to add information to be more careful in considering investments.

4. Conclusions

The results show that all the fraud pentagon theory (pressure, opportunity, rationalization, competence, and arrogance) affect financial statements. The study results are expected to provide an overview for related parties to understand that the theory of fraud pentagon can be relied upon to detect financial statements. The study results are expected to be considered by related parties to be better prepared when detecting financial statement fraud using the fraud pentagon theory model. Investors can use the pentagon theory to add information to be more careful in considering investments. Users of financial statements can use the variables of pressure, opportunity, rationalization, competence, arrogance to detect whether a company has the potential for fraudulent financial statements to be used as decision-making material.

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