SCORRE approach as an instrument for detecting fraudulent financial reporting

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Abstract

This study aims to analyze S.C.O.R.R.E. (stimulus, capability, opportunity, capability, cooperation, and ego) as the cause of financial statement fraud. The study was conducted on B.U.M.N. companies in Indonesia as a population with published financial statement analysis units with a total of 122 as samples obtained by purposive sampling technique after being selected for the period 2014-2018 (five years). The Binary Logistics regression technique is used in analyzing data with the dependent variable using a nominal scale (0-1) as a measurement of financial statement fraud. The study concludes that not all measurement dimensions are predicted to affect the occurrence of fraud in financial statements while measurements using other dimensions prove a significant influence on the event of financial statement manipulation. The study results provide a reference to the potential for preventing financial statement fraud by identifying several measurement dimensions that can trigger financial statement fraud. Research using Binary Logistics regression would be better confirmed through observation either by interview or primary data that supports and predicts the results of the analysis that was not carried out in this study, so the conclusions obtained have not fully concluded the existing phenomena.

Keywords: SCORRE, Fraud, Financial Report

JEL Classification:
M41

Introduction

Fraud is a crime that is extraordinarily detrimental, not only on the financial aspect but also has a significant impact on other aspects and is capable of causing organizational destruction (A.C.F.E., 2018) by leaders who have access (Prihanto et al., 2020; Prihanto & Guna, 2020) and their employees. Furthermore, throughout 2017 various fraudulent motives resulted in losses reaching Rp. 70,000 trillion or US$ 7 trillion, with wealth abuse of 89% median cases per case of US$ 114,000, then corruption of 38% median cases per case of US$ 250,000, and financial statement fraud only 10% but the median value per case reached US$ 800,000 (A.C.F.E., 2018). Manipulation of financial statements in Indonesia is experienced by several companies, namely P.T. Garuda Indonesia, P.T. Hanson International (Dewi, 2020). The latter occurred in the case of Asuransi Jiwasraya and Asabri, which later destroyed the organization due to various kinds of fraud committed by them due to mismanagement (Rahim et al., 2017; Salin et al., 2017; Zakaria et al., 2016) which can be described in Figure 1. which states that the financial sector is more likely to commit fraud in the state companies as explained below.

This study reveals the factors that cause financial fraud by using fraud Hexagon is a fraud detector that is dominant in the different dimensions of collusion as a new measurement (Vousinas, 2019) through various proxies used, compared to other researchers in the previous period Yusof, (2016) stated his research that tested factors causing Heptagon fraud and its prevention (Umar, 2016). After the emergence of these concepts, analyses were developed that tested, discussed, and created the factors for the occurrence of fraud such as those conducted: Agustina & Pratomo, (2019); Aviantara, (2019); Bawekes et al., (2018); Prihanto, (2021); Puspitha Yessi & Yasa, (2018); Siddiq et al., (2017) and others.
Research on fraud is indeed constantly growing every year by researchers by identifying various causes of fraud from time to time and looking for multiple factors that generally have relatively similar similarities in each researcher and are increasingly comprehensive (Cressey, 1965; Crowe, 2011; Klitgaard, 2003), 2001; Umar, 2016; Wolfe & Hermanson, 2004; Yusof, 2016) or prevent such fraud (Bierstaker, 2009; Mihret, 2015; Umar, 2016). The research also concludes with slightly different findings between them. Fraud is a criminal behavior with a variety of unique causes and various contributing factors. Still, in essence, fraud can be caused by the initiative and tendency of the perpetrators due to conflicts of interest (Jensen & Meckling, 1976a), whether interests involve individuals or groups (Prihanto et al., 2020).

This research is significant to do because it aims to provide updates in the aspect of Hexagon fraud testing (Vousinas, 2019) by using collaboration as a new measurement and other dimensions (stimulus, capability, opportunity, ego, cooperation, and rationalization), which are the causes of fraudulent presentation. Financial statements. The calculation of financial statement manipulation uses the Dechow f-score formula (Dechow et al., 2011; Skousen & Twedt, 2009) for state companies in Indonesia. In addition, fraud causes the destruction of organizational and nation structures (Quah, 2015), which can damage the sustainability of a generation.

Research also is interested in developing new measurements of theoretical aspects helpful in detecting fraud from another point of view so that business people and public organizations can implement it in anticipating fraud prevention.

**Literature Review**

**Theoretical Background and Hypothesis Development**

**Theories Related to Research Variables**

Discussing the study of fraud cannot be separated from agency theory (Jensen & Meckling, 1976a) which is the motive for the initial cause of fraud involving two or more parties involved in a conflict of interest (Scott, 1997), so that agency theory is still relevant to this day. The legitimacy of organizational accountability is established in the environment between those who lead and are led (Brown & Deegan, 2012; Ndraha, 2011). Problems then occur when the principal enters into a contract with an agent to provide welfare, such as delivering profitability that maximizes their expected maximum utility (Wolk et al., 1992) but what happens is that they commit fraud for their interests or jointly conspire or cooperate in the negative (Garner, 2014). In general, agency theory explains aspects of human actors who are selfish, limited thinking power about future predictions, and always avoiding risk (Eisenhardt, 1989), so that it gives birth to the potential for fraud. Furthermore, this fraudulent practice generally consists of the following three elements: Conversion, which is defined as cheating, fabricating and deceiving, Concealment which is hiding or distorting facts through manipulation; and Theft which is stealing wealth (Kranacher et al., 2011; Umar, 2016) In fact, this behavior is harmful and has the potential to be imitated by their subordinates (Lee, 2017; Mo & Shi, 2015).

**Various Theories of Financial Statement Fraud**

Understanding the occurrence of fraud takes a unique perspective among academic researchers; the agency theory point of view provides an overview of the reasons for humans with three essential characteristics (Eisenhardt, 1989), namely: 1) selfishness, 2) limited thinking power in predict the future, and 3) tend to avoid risk. For this reason, the tendency for fraud to occur can be predicted because a person or organization can also be a criminal organization dedicated to their goals (Venter, 2007) to take things from the other party (Garner, 2014). The target of financial fraud is to manipulate with misstatements or ignore the rules of disclosure of financial statements that provide wrong information and deceive financial statement users (Arens et al., 2008) so that it has an impact on (A.C.F.E., 2018): beautifying the appearance of reports that encourage investors to invest, increasing share prices and paying dividends, financing and favorable terms from existing financing, fulfilling company goals and objectives, obtaining bonuses from financial performance. Detecting financial statement manipulation can be used to detect organizations' discretionary accruals management by combining multiple measures of discretionary accruals with other sizes to form a composite measure referred to as the f-score (Dechow et al., 2011). The Modified Jones Model's development (Dechow et al., 1995; Dechow & Dichev, 2002; Beneish, 1999). The advantage of this model is to develop a measure that can be directly derived from the financial statements, so it can easily estimate the possibility of misstatements in the financial statements.
Stimulus (A.G.R.O.W.) against fraudulent financial statements. Management has the capacity to falsify financial statements to boost performance for organizations that are in a critical moment or experiencing slower growth than the industry norm (Skousen & Twedd, 2009). Companies with good economic conditions can be seen from the assets they have, and unhealthy company conditions have the potential to be a stimulus for management because, in the eyes of the public, their reputation will decline and result in hampering the flow of investment funds as their working capital (Myers & Majluf, 1984). As a result, the higher the growth ratio of a company's total assets, the greater the likelihood of committing financial statement fraud, and vice versa, because it impacts the company's financial stability (Aprilia, 2017b; Septriani, 2018; Siddiq et al., 2017; Tessa & Harto, 2016) so that research hypothesis one (H1) is put forward:

**H1: Stimulus has a positive effect on the occurrence of fraudulent manipulation of financial statements**

Capability (B.O.D.C.) against fraudulent financial statements. Capability refers to a person's capacity or ability to do a variety of job-related duties (Robbins & Judge, 2015). This capacity to determine a fraudster's position can be viewed as a gap that presents opportunity to exploit it. And they play a crucial role in the spread of fraud (Priantara, 2013). Changes in directors are frequently politically fraught, and conflicts of interest arise when particular parties' interests collide (Jensen & Meckling, 1976b; Scott, 2014). The emergence of a stress period as a result of an unstable command and control structure over company activities, which management uses to design strategies and time the right way to commit fraud in his favor (Wolfe & Hermanson, 2004b), such that a change in directors has an effect on the occurrence of financial fraud (Manurung & Hardika, 2015; Sasongko & Wijayantika, 2019; Siddiq et al., 2017). For this reason, the second research hypothesis (H2) is put forward:

**H2: Capacity has a positive effect on the occurrence of financial fraud**

Collusion (A.U.D.F. and E.P.R.O.) against fraudulent financial statements. Fees for audit services (A.U.D.F.) are payments made by clients to Public Accounting Firms (K.A.P.) because they provide services for examining financial statements that are determined before starting the audit process. The low fee for services provided by one practitioner compared to another is not a violation of the code of ethics. Still, public accountants must consider client needs, duties, and responsibilities according to law, independence, level of expertise, responsibilities attached to the job, and the complexity of the work, which is allocated as much time as needed. K.A.P.'s that receive high audit fees tend to face the complexity of conflicts of interest in providing clean reports or W.T.P. opinions as happened with Enron and the tendency to keep clients from switching to other K.A.P.'s by creating good relationships with these clients (Bamber, 2001). The higher the fee given, the better and the quality of the report produced, but to maintain high audit fees, audit firms do not disclose fraud (Yang & Sung, 2017), while another opinion states that large audit firms tend not to commit fraud (Lisic et al., 2014). In line with this, because they do not provide their resources to serve the needs of fraud disclosure well (Ke et al., 2014), it positively affects fraud (Jane et al., 2012). Thus, the higher the audit fee, the potential for financial fraud to take place so that the three research hypotheses (H3) are put forward:

**H3: Large collusion (A.U.D.F.) has a positive effect on the occurrence of fraudulent financial statements**

The most prevalent collusive practice in the government is through a procurement mechanism by business actors who should compete behind closed doors; they conspire to increase prices or reduce the quality of goods/services for buyers who want to obtain these products/services procurement processes. This conspiracy undermines and impairs the procurement of public goods and services, necessitating the establishment of an E-Procurement or E-Tendering (E.P.R.O.C.) system to compete against the lowest bidder who meets the requirements; or (ii) the bidder with the most economically advantageous price. For this reason, the use of adequate internal technology by organizations (Soomro et al., 2019; Vahdati & Yasini, 2015) affects making it easier to prevent fraud in manipulating financial statements (Halbouni et al., 2016; Rubino & Vitolla, 2014) compared to traditional methods, which E- Procurement/E-Tendering indicates to prevent fraud (Djojosoekarto, 2008; Haryati et al., 2011; Jasin et al., 2007; Wibowo, 2015). For this reason, the research hypothesis H3a is stated as follows:

**H3a: Collusion (implementation of e-procurement/e-tendering) hurts the occurrence of fraudulent financial statements**

Opportunity (I.A.C.H.G. and WBS) against fraudulent financial statements. Internal auditor turnover (I.A.C.H.G.) For in-depth knowledge and understanding of the business environment and internal control structure, has served as the first line of defense against fraud in organizations (Rezaee, 2005), turnover or rotation from Internal auditors affect fraud because the more often someone occupies the position, the greater the potential for collusion (Jayalakshmy et al., 2005; Prihantosaro et al., 2020). With the trust relationship obtained by managers because of proximity, it jeopardizes statements made by managers so that auditors do not identify and neglect to identify fraud (Hazami-Ammar, 2019) and then allow fraud to occur because of conflicts of interest (Jensen & Meckling, 1976a; Scott, 2014). As a result, it is vital to rotate staff and auditors in order to suppress and prevent potential fraud (Prihanto, 2020). The collision that occurs is one of them caused by the opportunity that lies due to the extended position of an officer who occupies his place so that they have the potential to commit fraudulent acts by protecting their criminal behavior from each other, for that research hypothesis four (H4) is stated below:

**H4: The change of the old internal auditor (I.A.C.H.G.) has a negative effect on the occurrence of fraudulent financial statements**
The Whistleblowing system (WBS) was born due to the number of frauds occurring in several governments and private institutions (Olander, 2004), which was structured as an effort to prevent fraud and crime within the company (Umar, 2016). The company's WBS encourages employees to protect for employees to report fraudulent acts committed by their colleagues so that if an employee sees fraud committed by a colleague, the employee can report it to the party who has the authority so that efforts to prevent and detect fraudulent practices in the company can run optimally (Ayu Wardani & Sulhani, 2017), as reported incidents of violations that can help maintain workplace security, as well as profit and company reputation (Georgia, 2011) and have a significant positive effect on preventing financial statement fraud (Agusyani et al., 2016; Pamungkas et al., 2017; Utami, 2018; Wardana et al., 2017), so that the four research hypotheses (H4a) are put forward:

**H4a: The implementation of the Whistleblowing System has a negative effect on the occurrence of financial fraud**

Rationalization (G.O.V.S.H.I.P.) against financial fraud. The amount of share ownership can influence controlling management, for the better or even vice versa. A large percentage of share ownership can affect preparing financial statements that allow for accrual due to the interests of the majority controlling party. The majority share ownership in an issuer uses institutional ownership indicators that do not affect (Aprilia, 2017b; Quraini & Rimawati, 2019), while Bawekes et al. (2018); Tessa & Harto (2016) and Aviantara (2019) stated that their research results influence financial fraud. The ownership of shares owned by the government in an organization will be a rationalization for management to carry out fraudulent activities, considering the conflicts of interest in government organizations are still high. They are supported by a high level of fraud (A.C.F.E., 2018). Still, thus, based on government awareness and demands that are supported by a control system for good performance from leaders, it reduces and reduces fraud (Prithanto, 2020; Prihanto et al., 2020) so that the five research hypotheses (H5) are stated as follows:

**H5: The size of the majority ownership has a negative effect on the occurrence of financial fraud**

Ego (C.E.O.E.D.U. and C.E.O.M.I.L.) against fraudulent financial statements. The company's high leadership education (C.E.O.E.D.U.) contributes to a person's rationality in acting which is then assessed as human capital (Miller et al., 2015), which has the potential to produce a good performance which in this study is measured by the company's C.E.O.'s higher education background which describes the ability managerial skills needed to provide superior performance in large and complex businesses (Erlim, 2017). The ability of the C.E.O. to contribute to the knowledge, perspective, and ability to understand the concept so that the higher education becomes a picture of the C.E.O.'s professional capability in the future (Bhagat et al., 2019). The personal characteristics of a C.E.O. with an I.Q. (Intelligent Quotient) significantly affect the achievement of the level of education that shapes the appropriate decision-making ability of the C.E.O. on the company's performance (Benmelech & Frydman, 2015) by determining the social and economic knowledge of someone with intelligence more patience. Who are high and do not panic easily (King et al., 2016). In addition, higher education backgrounds are more able to process information quickly and accept significant changes in a company (Bantel & Jackson, 1989); C.E.O.'s and C.F.O.'s with Ph.D. education backgrounds are more likely to follow academic input and use actual and careful ways of evaluating new projects. (Graham & Harvey, 2001) and demonstrate the level of technical expertise obtained from a doctoral degree (King et al., 2016). Thus, the higher the education level of the C.E.O., the awareness of anti-fraud behavior is raised, so the research hypothesis six (H6) is stated as follows:

**H6: The higher the C.E.O.'s education level, the negative effect on the occurrence of financial fraud**

A CEO with a military background (C.E.O.M.I.L.) has the education, knowledge, and experience in upholding truth values. The presence of military officers in a business entity influences the company's activities (Muradi, 2007) and also influences decisions within their company (Benmelech & Frydman, 2015; Haavelmo, 1943), including in Indonesia, which has political and military relations at the center of power. Bureaucratic politics, because C.E.O.'s from the military can provide benefits or benefits for companies on the quality of governance, especially in reducing interest costs (Crouch, 1978; Sukma, 2013). The study stated that militarily connected companies have lower interest rates than those not militarily connected (Harymawan, 2016; Kim & Zhang, 2016; Lennox et al., 2012). However, other research shows that the military background of a company C.E.O. has a significant effect on the selection of the revaluation method used to make it easier for companies to contribute to strengthening them with higher compensation (Li & Rainville, 2020) and tend to carry out earnings management (Harymawan, 2020). With the facts and cases in Indonesia that were found, C.E.O.'s who came from the military contributed to the company even though it was done through manipulation, so the research hypothesis (H6a) can be stated as follows:

**H6a: C.E.O.'s who come from the military can have a positive effect on the occurrence of financial fraud**

### Research and Methods

#### Research Design

This research was conducted to prove fraudulent behavior by the company by detecting various points of view of financial data indicators that can view several financial statements as a unit of analysis owned and published by several state companies as research samples. The research included in the quantitative type of causality uses various measurement formulas proposed in detecting fraudulent financial statements. Binary Logistics regression analysis was used to predict fraud assuming values of 0 and 1 as categorical statements (Hosmer & Lemeshow, 1989) whether companies identified fraud or not according to Hexagon fraud...
dimensions (Vousinas, 2019), while the independent variables of the study used a combination of continuous and categorical that causes the assumption of normality of data distribution is not met.

**Measurement**

The various dimensions of fraud revealed by the Hexagon model (SCORE) provide an assessment of several factors with the following measurements:

Financial statement fraud (dependent), measured using the F-SCORE formula (Dechow et al., 2011; Skousen & Twedt, 2009) explains (1) if F-score > 1, and (0) if F-score < 1 (scale nominal) with the following formula 1.1:

**Data Analysis Method**

To test the effect of audit fee, managerial ownership, percent ROA change rate, and financial distress to voluntary auditor switching period 2015-2020 on financial sector, used the model logistic regression analysis (logistics regression). Reasons to use logistic regression analysis that is because dependent variable in research this is dichotomous (dummy) in the calculation. As for the model regression in this study is as follows:

**Formula 1:** Model regression

\[
F = \frac{\text{Probability Value}}{\text{Unconditional Probability}} = \text{Unconditional Probability} = 0.0037
\]

\[
\text{Probability Value} = \frac{e\left(\text{Predicted Value}\right)}{1 + e\left(\text{Predicted Value}\right)} = e = 2.71828183
\]

\[
\text{Predicted Value} = -7.893 + 0.790\times\text{RSST} + 2.518\times\Delta\text{REC} + 1.191\times\Delta\text{INV} + 1.979\times\text{SOFTASSETS} + 0.171\times\Delta\text{CASHSALES} - 0.932\times\Delta\text{ROA} + 1.029\times\text{ISSUE}
\]

Note: The formula for each element in Predictive Value is formulated through steps, (1) predictive value (P.V.) is converted to probability. (2) To generate an F-Score, divide the resulting likelihood by the unconditional probability of misstatement. If the result is larger than 1 (one), it suggests a greater likelihood of misrepresentation than if the result is less than 1.

Furthermore, the calculation formula using the F score developed by Dechow et al. (2011) is as follows in Table 1:

**Table 1:** Dechow’s Formula

<table>
<thead>
<tr>
<th>Variable</th>
<th>Abbreviation</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>R.S.S.T. Accruals</td>
<td>Rsst_acc</td>
<td>((\Delta)WC + (\Delta)NCO + (\Delta)FIN)/ Average Total Assets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(\text{NCO} = [\text{Total assets} – \text{Current assets – Investment and advances}] – [\text{Total liabilities} – \text{Current liabilities-Long-term debt}] )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(\text{FIN} = [\text{Short-term investment} + \text{Long-term investment}] – [\text{Long-term debt} + \text{Debt in current liabilities + Preferred stock}] )</td>
</tr>
<tr>
<td>Change in receivables</td>
<td>ch_rec</td>
<td>(\Delta) Account receivable/Average total assets</td>
</tr>
<tr>
<td>Change in inventory</td>
<td>ch_inv</td>
<td>(\Delta) Inventory/Average total assets</td>
</tr>
<tr>
<td>Percentage of soft assets</td>
<td>Soft_assets</td>
<td>(Total assets-PP&amp;E-Cash and cash equivalent)/Total assets</td>
</tr>
<tr>
<td>Change in cash sales</td>
<td>ch_cs</td>
<td>[Sales-(\Delta)Account receivable]</td>
</tr>
<tr>
<td>Change in return on assets</td>
<td>ch_roa</td>
<td>[[\text{Earnings/Average total assets}] – [\text{Earnings/1/Average total assets}]]</td>
</tr>
<tr>
<td>Actual issuance</td>
<td>issue</td>
<td>An indicator variable coded one if the firm issued securities during year t</td>
</tr>
</tbody>
</table>

While the calculation with independent variables using the following formula stages: Stimulus, category scale ratio measured using A.G.R.O.W. (Skousen & Twedt, 2009) is the percentage change in total assets with the following Formula 2:
Formula 2: Stages: Stimulus, category scale ratio measured using A.G.R.O.W.

\[
AGROW = \frac{Total\ asset\ (n) - Total\ asset\ (n - 1)}{Total\ asset\ (n - 1)}
\]

Capability, the ratio scale category is measured using the B.O.D.C. reference (Manurung & Hardika, 2015; Sasongko & Wijayantika, 2019; Siddiq et al., 2017) of replacement directors in the year of observation studied.

Collusion, using a ratio scale measured using audit fees (A.U.D.F.) (Bamber, 2001; Praptika & Rasmini, 2016) with stages using the natural logarithm (Ln) of audit fees, while E.P.R.O. (E-Procurement) is a nominal scale measured by using categories (1) if the company has an e-procurement or e-tendering portal, and (0) if it does not (Djojosoekarto, 2008; Haryati et al., 2011; Jasin et al., 2007) with the following Formula 3:

Formula 3: GOVSHIP measurement

\[
GOVSHIP = \frac{Governement\ Stock}{Total\ Stock}
\]

Opportunity, measured using I.A.C.H.G. (internal auditor exchange), is a ratio scale, namely the number of changes to the audit committee and head of internal audit in the year studied (Aprilia, 2017b; Yusof, 2016), while the WBS measurement (implementation of the whistleblowing system) uses a nominal scale (Agusyani et al., 2016; Pamungkas et al., 2017; Wardana et al., 2017) with categories (1) = Companies implementing a whistleblowing system and (0) = not implementing.

Ego, measured using C.E.O.E.D.U. (C.E.O. education) which is a nominal scale categorized, namely (1) = C.E.O. of a doctorate (Ph.D.) and (0) = otherwise (Erlim, 2017; Graham & Harvey, 2001; King et al., 2016). While C.E.O.M.I.L. (C.E.O. affiliated with the military) is a nominal scale with categories (1) = C.E.O. of a retired (ex-military) and (0) = otherwise (Harymawan, 2016; Kim & Zhang, 2016; Lennox et al., 2012).

Analysis and Findings

Analysis

The study was conducted on all state-owned companies (S.O.E.’s) as a population, with a total sample of 142 companies that have been selected using purposive sampling with an analysis unit of financial statements that have been audited for five years which are grouped into Main Industry consisting of 1) Agriculture, 2) Chemical, 3) Finance, 4) Infrastructure, 5) Mining and 6) Property. The sub-sector consists of 1) Plantation, 2) Cement, Fertilizer, Metal, 3) Banking, Insurance, Financing, 4) Energy, Telecommunications, Transportation, 5) Minerals, Petroleum, and 6) Construction. The final sample size is based on the residuals deviance output, i.e., the residual value is standardized based on the standard deviation; 20 companies with the highest deviance are obtained to eliminate the data. Finally, the final total sample in this study becomes 122, as illustrated in Table 2, which is then carried out a descriptive analysis of statistical information on Table 3 below.

<table>
<thead>
<tr>
<th>No.</th>
<th>Sample Criteria</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>State-owned companies with total assets &gt; 30 trillion rupiahs (Coverage 96%) based on the 2018 central government financial report</td>
<td>29</td>
</tr>
<tr>
<td>2</td>
<td>Total observation five years</td>
<td>145</td>
</tr>
<tr>
<td>4</td>
<td>Companies that meet the criteria</td>
<td>142</td>
</tr>
<tr>
<td>5</td>
<td>Elimination (residuals deviance)</td>
<td>(20)</td>
</tr>
<tr>
<td></td>
<td>Final sample</td>
<td>122</td>
</tr>
</tbody>
</table>

Source: secondary data processed
Table 3: Descriptive Statistics

<table>
<thead>
<tr>
<th>No</th>
<th>Variable</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AGROW</td>
<td>122</td>
<td>-0.210</td>
<td>2.539</td>
<td>0.260</td>
<td>0.355</td>
</tr>
<tr>
<td>2</td>
<td>BODY</td>
<td>122</td>
<td>0</td>
<td>8</td>
<td>1.877</td>
<td>2.019</td>
</tr>
<tr>
<td>3</td>
<td>AUDI</td>
<td>122</td>
<td>19.693</td>
<td>24.501</td>
<td>21.677</td>
<td>1.074</td>
</tr>
<tr>
<td>4</td>
<td>IACHG</td>
<td>122</td>
<td>0</td>
<td>5</td>
<td>0.877</td>
<td>1.088</td>
</tr>
<tr>
<td>5</td>
<td>GOV</td>
<td>122</td>
<td>0.51</td>
<td>0.812</td>
<td>0.260</td>
<td>0.206</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No</th>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid %</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>E.P.R.O.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-E-Pro</td>
<td>48</td>
<td>39.3</td>
<td>39.3</td>
<td>39.3</td>
</tr>
<tr>
<td></td>
<td>E-Procurement</td>
<td>74</td>
<td>60.7</td>
<td>60.7</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>122</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>WBS</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Non-WBS</td>
<td>4</td>
<td>3.3</td>
<td>3.3</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>Whistleblowing</td>
<td>118</td>
<td>96.7</td>
<td>96.7</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>122</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>C.E.O.E.D.U.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Non-PhD</td>
<td>110</td>
<td>90.2</td>
<td>90.2</td>
<td>90.2</td>
</tr>
<tr>
<td></td>
<td>PhD</td>
<td>12</td>
<td>9.8</td>
<td>9.8</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>122</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>C.E.M.I.L.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Military</td>
<td>115</td>
<td>94.3</td>
<td>94.3</td>
<td>94.3</td>
</tr>
<tr>
<td></td>
<td>Ex-Military</td>
<td>7</td>
<td>5.7</td>
<td>5.7</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>122</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Figure 2 shows that overall, based on the 142 samples, a total of 50 company data with cross-sections and time series indicated fraud, while 92 did not. The output residual deviance, the standardized residual value based on the standard deviation, obtained 20 companies with the highest deviance. The data was eliminated, and the final total sample in this study was 122. The spread of the information has a configuration that is not feasible because the standard deviation value is greater than the mean (A.G.R.O.W., B.O.D.C., I.A.C.H.G.). In contrast, the A.U.D.F. and G.O.V.H.I.P. have values that are smaller than the mean so that according to the characteristics of good data.

![Figure 2: Percentage of financial fraud- Dechow Model](image)

In the descriptive statistical analysis obtained several facts that there were changes in asset growth (A.G.R.O.W.) that went up and down in several companies detected in table 4, in addition to changes in share ownership (B.O.D.C.) also occurred in the year of observation in a number of these state companies. The evolution of several directors and the chairman of the internal auditor (I.A.C.H.G.), and the audit committee is also reflected in the data, accompanied by changes in the external auditor fee rate (A.U.D.F.). The data also describes e-procurement or e-tendering (E.P.R.O.C.), which has been implemented by most companies (60.4%), then offset by the implementation of the whistleblower system by companies (96.7%) which on average is very good. Most of the C.E.O.'s education levels are not Doctoral or Ph.D. graduates (C.E.O.E.D.U.) and C.E.O.'s from the military (C.E.O.M.I.L.) who are mostly not affiliated with state-owned companies in Indonesia. Overall the data depicted shows the feasibility of data customarily distributed and can be used because of the fluctuating tendency of the data.

Similarly, the logistic regression model's feasibility test (Table 4) is the Overall model fit test, which identifies or influences the independent variables concurrently in the logistic regression model, similar to the F test in the regression model. In comparison, the provisions of Hosmer and Lemeshow's Goodness of Fit Test have a statistically significant value greater than 0.05, indicating that they can accurately forecast the value of the observation and are thus considered practicable (Ghozali, 2013).
Table 4: Model Feasibility Test

<table>
<thead>
<tr>
<th>Test</th>
<th>Testing Characteristics</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iteration History:</td>
<td>Good fit</td>
<td></td>
</tr>
<tr>
<td>Iteration Block number</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>-2 Log likelihood</td>
<td>144,377</td>
<td>76,954</td>
</tr>
<tr>
<td>Hosmer &amp; Lemeshow test:</td>
<td>Good fit</td>
<td></td>
</tr>
<tr>
<td>Chi – square and signifikan</td>
<td>6,192</td>
<td>0.626 (&gt;0.05)</td>
</tr>
<tr>
<td>Coefficient of Determination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cox &amp; Snell R Square and Nagelkerke R Square</td>
<td>0.425</td>
<td>0.612</td>
</tr>
</tbody>
</table>

Source: Processed data

The overall results of this study's model testing indicated that it is feasible to proceed with the subsequent data processing analysis. The rule of thumb assumption substantiated this conclusion, as did the logistic regression analysis conducted at each level. Additionally, the research hypothesis test demonstrates that not all offered hypotheses are admissible; the results of the research hypothesis test (Wald Test) are provided in Table 5.

Table 5: Hypothesis Test

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>Sig.</th>
<th>Prediction</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGROW</td>
<td>2.515</td>
<td>0.908</td>
<td>7.667</td>
<td>0.006***</td>
<td>+</td>
<td>accepted</td>
</tr>
<tr>
<td>BODY</td>
<td>0.909</td>
<td>0.237</td>
<td>14.732</td>
<td>0.000****</td>
<td>+</td>
<td>accepted</td>
</tr>
<tr>
<td>A.U.D.I.</td>
<td>-0.661</td>
<td>0.332</td>
<td>3.955</td>
<td>0.047**</td>
<td>+</td>
<td>rejected</td>
</tr>
<tr>
<td>E.P.R.O.</td>
<td>-1.341</td>
<td>0.664</td>
<td>4.078</td>
<td>0.043**</td>
<td>-</td>
<td>accepted</td>
</tr>
<tr>
<td>L.A.C.H.G.</td>
<td>-0.794</td>
<td>0.385</td>
<td>4.248</td>
<td>0.039**</td>
<td>-</td>
<td>accepted</td>
</tr>
<tr>
<td>WBS</td>
<td>-5.000</td>
<td>1.614</td>
<td>9.603</td>
<td>0.002***</td>
<td>-</td>
<td>accepted</td>
</tr>
<tr>
<td>G.O.V.S.H.I.P.</td>
<td>-7.814</td>
<td>1.972</td>
<td>15.693</td>
<td>0.000****</td>
<td>-</td>
<td>accepted</td>
</tr>
<tr>
<td>C.E.O.E.D.U.</td>
<td>-0.139</td>
<td>1.426</td>
<td>0.009</td>
<td>0.923</td>
<td>-</td>
<td>rejected</td>
</tr>
<tr>
<td>C.E.M.I.L.</td>
<td>-0.126</td>
<td>1.627</td>
<td>0.006</td>
<td>0.938</td>
<td>+</td>
<td>rejected</td>
</tr>
<tr>
<td>Constant</td>
<td>22.387</td>
<td>7.956</td>
<td>7.918</td>
<td>0.005</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note level sig: *=0.10, **=0.05, ***=0.01, ****=0.000. Number of observations 122 corporate

Dependent variable: financial statement fraud (F.F.R.)

The output of data processing using S.P.S.S. tools in Table 5 can then be made the following Equation 1:

Equation 1: Financial statement fraud (F.F.R.)

\[
\text{FFR} = 22.387 + 2.515 \text{AGROW} + 0.909 \text{BODC} - 0.661 \text{AUDF} - 1.341 \text{EPRO} - 0.794 \text{ICHG} - 5.000 \text{WBS} - 7.814 \text{GOVSHIP} - 0.139 \text{CEOEDU} - 0.126 \text{CEOMIL} + \varepsilon
\]

The interpretation of the results of data processing shows that Hexagon fraud with the measurement of SCORE dimensions (Stimulus, Capability, Collusion, Opportunity, Rationalization, and Ego) can be accepted as a whole. Several failures of the hypothesis that cannot be accepted in this study can also be caused by inaccurate measurements such as A.U.D.F., I.A.C.H.G., C.E.O.E.D.U., and C.E.O.M.I.L., which are used as proxies in this study. In addition, differences in research locations that cannot be equated between developing and developed countries, governance, culture, and so on also affect the results of this study. As is the case with Indonesia, which is currently still inconsistent in disclosing financial and management information openly and consistently, this is also why this hypothesis cannot be accepted.

Discussion

Stimulus Effect on Fraudulent Financial Statements

Stimulus as a pressure factor that affects fraud has a positive and significant influence on the occurrence of fraudulent financial statements in companies, and the stimulation occurs due to financial and economic pressures carried out by a person or group (Cressey, 1965; Crowe, 2011; Umam, 2016; Voussinas, 2019; Wolfe & Hermanson, 2004a; Yusof, 2016) as evidenced by a positive value with a significance of 0.01. The manipulation of numbers in financial statements by many companies (WorldCom, Enron, Olympus, Lehman Brothers, and so on) is driven by the motivation to improve their financial performance (Skousen & Twedt, 2009) unfavorable conditions or crises by increasing the probability ratio. Financial statements are unfairly in line with previous research (Aprilia, 2017b; Septiani, 2018; Siddiq et al., 2017; Tessa & Harto, 2016), so research hypothesis one (H1) is accepted. Many factors cause pressure to trigger manipulation of financial statements; pressure can come from individuals and groups by manipulating the number of assets owned as measured by this study to increase public confidence in buying and increasing the value of shares.
Capability’s Effect on Fraudulent Financial Statements

Capability denotes the organization's ability to commit fraud, which is typically carried out by the company's leadership in order to positively affect the occurrence of financial fraud, with a significance of 0.000, indicating that the organization's leadership (B.O.D.C.) has the absolute ability to commit fraud by ordering financial manipulation due to the influence they have. The findings of this study corroborate prior studies on preventing conflicts of interest. (Jensen & Meckling, 1976a; Priantara, 2013; Scott, 2014) that a change of directors leads to fraud prevention, meaning that the longer the directors are in office, the opportunities to commit fraud will increase. By utilizing their capabilities and capacities (Manurung & Hardika, 2015; Sasongko & Wijayanti, 2019; Siddiq et al., 2017; Wolfe & Hermanson, 2004a). Cases of fraud in financial reporting by utilizing the capacity element occurred in Jiwasraya Insurance, Asabri, Garuda Indonesia, PT Hanson, etc. A leader has strong enough access when used to manipulate.

Effect of Collusion on fraudulent financial statements

The measurement of collusion using A.U.D.F. and E.P.R.O. is not entirely acceptable; A.U.D.F. as a proxy for collaboration (H3) is unacceptable, meaning that audit fees are not the cause of financial statement fraud because the results obtained are negative. However, problems related to the effects of audited financial statements occurred in several large public accounting firms such as Jiwasraya -PricewaterhouseCoopers (PwC), PT Hanson International Tbk - Ernst Young, PT Tiga Pilar Sejahtera Food Tbk - Ernst Young, Indosat Ooredoo - Ernst Young, Baker Hughes – K.P.M.G., and Garuda Indonesia - B.D.O. International Limited (Kampai, 2020), so it was concluded that there was a similarity between the results and the phenomena and previous research studies used (Jane et al., 2012; Ke et al., 2014; Liscia et al., 2014; Yang & Sung, 2017) that hefty fees have the potential to support not disclosing fraud in financial statements as in this case because of the tendency of both parties concerned. Audit fees in Indonesia illustrate the professionalism of accountants as evidenced by the minimal problems that occur due to instances of information asymmetry (Jensen & Meckling, 1976b), which are insignificant but should be watched out for. The measurement of collusion using E.P.R.O.C. proves that by implementing E-Procurement or E-Tendering in several state-owned companies and government institutions, they have succeeded in controlling the procurement of goods and services that reduce and suppress collusion practices by manipulating numbers in financial reporting. With the use of adequate technology in the organization (Soomro et al., 2019; Vahdati & Yasini, 2015), it will be easier to prevent fraudulent manipulation of financial statements (Halbouni et al., 2016; Rubino & Vitolla, 2014) compared to the traditional way shown by the use of E-Procurement/E-Tendering that minimizes fraud (Djijoosoekarto, 2008; Haryati et al., 2011; Jasir et al., 2007; Wibowo, 2015), especially with the existence of an e-catalog that provides price standards in the procurement of goods and services. Therefore, it is concluded that the research hypothesis (H3a) is acceptable. Collusion prevention can be done by cutting the chain of collusion with transparency (Umar, 2016) and internal control over several activities (McNally, 2013).

The Effect of Opportunity on Fraudulent Financial Statements

The opportunity dimension can be quantified using both I.A.C.H.G. and WBS; I.A.C.H.G. states that internal audit turnover has a strong negative effect on the occurrence of financial fraud. For five years, 0.88 employee worked as an internal auditor. Internal audit, as a supervisor over the preparation and disclosure of financial accounts, can make a significant contribution by avoiding conflicts of interest between audited and auditing parties (Jensen & Meckling, 1976b; Scott, 2014). Additionally, the findings of this study corroborate previous research (Jayalakshmy et al., 2005; Prihanto et al., 2020) indicating that rotating internal auditor positions within an organization can help prevent fraud by reducing the intensity of engagement time that is excessive and results in burnout. And someone's neglect (Prihanto, 2020) results in substandard a

Effect of Rationalization on fraudulent financial statements

In predicting the occurrence of fraud, the level of share ownership has a negative and significant effect on financial statement manipulation, meaning that majority share ownership contributes to fraud prevention, so research hypothesis 5 (H5) can be accepted. The majority share ownership by the government of 51% - 81% allows it to act rationally in balancing external requests from other parties that have the potential to cause conflicts of interest in preventing manipulation of financial statements (Aviantara, 2019; Bawekes et al., 2018; Tessa & Harto, 2016). Existence through significant government ownership controls the negative potential that seeks to manipulate financial statements for specific interests (Jensen & Meckling, 1976a; Scott, 2014) with the argument of justification based on their thinking (Beasley et al., 2000; Cresssey, 1965; Crowe, 2011; Umar, 2016; Vousinas, 2019; Yusof, 2016). Given the large number of researchers who predict this factor, rationalization is the cause of fraud that anyone can carry out because the conditions that took place were further strengthened by their leadership capabilities (Prihanto, 2020).
Effect of Ego on fraudulent financial statements

Ego measurement used in predicting financial fraud through education owned by C.E.O.’s with Ph.D. education (C.E.O.E.D.U.) and C.E.O.’s affiliated with the military (C.E.O.M.I.L.) had no discernible effect on the occurrence of fraud, which contradicted the source research employed in this analysis (Cousins, 2019). Thus the research hypotheses H6 and H6a cannot be accepted. This result can be understood where the survey in the research data shows that 90.2% or 110 CEOs are not doctors. In comparison, as many as 94.3% or 115 CEOs are not military-affiliated, so this result cannot influence the fraud variable because it has a low value. The results of research on C.E.O.E.D.U. Who can predict fraud are certainly not following the predictions put forward by previous researchers (Bantel & Jackson, 1989; Benmelech & Frydman, 2015; Bhagat et al., 2010; Erlrim, 2017; Vossinas, 2019), which are supported by the character of a doctor (Ph.D.) who tends to easily understand environmental problems (King et al., 2016). Then C.E.O.M.I.L. as a measurement of ego is also not in line with research conducted by Harymawan (2020) which is expected to have C.E.O.M.I.L. Influence the decisions of company leaders to become more strategic because of their governance experience in the military (Benmelech & Frydman, 2015; Haavelmo, 1943; Muradi, 2007). However, the findings of this study do not always corroborate the presumption regarding the high cost of C.E.O.M.I.L (Harymawan, 2016; Kim & Zhang, 2016; Lennox et al., 2012) because the research was conducted on several government institutions (Prihanto, 2020), leaders from the military tend to be strict and compliant with regulations, supporting fraud prevention in organizations.

Conclusion

The study results conclude that measurements using the Hexagon fraud method with SCORE dimensions are not all acceptable, namely audit fees, one of the measurements of cooperation, and C.E.O.E.D.U. and C.E.O.M.I.L. are unacceptable measurements of ego. In contrast, other measures in predicting fraudulent financial statements can be accepted with a significance level of as low as 0.05. They can be applied to state-owned companies in Indonesia in the 2014-2018 period. Research using nominal data measurements analyzed by Binary Logistics regression has a predictive ability that is less convincing with the existing range of 0-1, so the conclusions generated must be carried out with other confirmations such as interviews or questionnaires and other data that support these results. In addition, observations were made only for five years. The number of companies was only 84% of the total S.O.E.’s with clusters with assets > 30 trillion rupiahs. Not all cases of fraud in government companies belonging to the B.U.M.N. could be concluded. Prevention of financial statement fraud that has not been maximized requires a formula from all points of view; this study provides a reference for companies or government and private organizations in preventing fraud with various measurements used in this study. The survey results also provide references in increasing efforts to improve organizational performance through fraud prevention, especially manipulation of financial statements that are carried out intentionally both with strategic objectives in saving the organization or for personal and group interests.

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Author Contributions: Conceptualization, methodology, Data Collection, formal analysis, writing—original draft preparation, writing—review and editing by author. Author has read and agreed to the published the final version of the manuscript.

Institutional Review Board Statement: Ethical review and approval were waived for this study, due to that the research does not deal with vulnerable groups or sensitive issues.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy.

Conflicts of Interest: The author declares no conflict of interest.

References


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