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Fraudulent Financial Reporting in Ministerial and Governmental Institutions in Indonesia: An Analysis Using Hexagon Theory

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Abstract: This study examined fraudulent financial reporting in the ministerial and governmental institutions in Indonesia. It adopted the hexagon theory that identified six elements (pressure, opportunity, rationalisation, capability, arrogance, and collusion) in determining whether these elements influence fraudulent financial reporting in the institutions. Content analysis was used on the financial statements of thirty-two ministerial and governmental institutions over three years from 2018 to 2020. This study shows that three out of the six elements, namely opportunity, arrogance, and collusion, significantly affect fraudulent financial reporting. The effects are positive, confirming the proposition of the hexagon theory. On the other hand, this study could not provide evidence on the effect of pressure, rationalisation, and capability on fraudulent financial reporting in the ministerial and governmental institutions. The findings in this study suggest the importance of a holistic application of the whistle-blowing and e-procurement systems in all governmental elements to deliver a transparent, accountable organisational performance for the stakeholders, especially society.

Keywords: fraudulent financial reporting; ministerial and government institutions; hexagon theory; Indonesia



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1. Introduction

Fraudulent financial reporting cast an increasingly adverse impact on individual investors and the stability of global economies (Zhou and Kapoor 2011). Despite intense efforts, it has become a problem that has increased in frequency and severity over the years (Wolfe and Hermanson 2004). The KPMG's fraud survey in 2003 showed that fraudulent financial reporting more than doubled from 1998. Fraudulent financial reporting could create a substantial negative impact on an organisation's reputation and its market value (Hogan et al. 2008). Consequently, it erodes public confidence in the reliability of financial reporting as a means to assess an organisation's prospects (Persons 1995).

Fraudulent financial reporting often occurs in private organisations as they focus on gaining as much support as possible from their stakeholders (Tuan Mat et al. 2019). However, it can also occur in public organisations. In Indonesia, for example, the Financial Services Authority (OJK), the Supreme Audit Agency (BPK), and the Indonesia Stock Exchange (IDX) reported that a state-owned enterprise, PT Garuda Indonesia, was asked to improve its balance sheet, which lost USD 2 billion in 2019. This scenario provides an indication of fraudulent financial reporting (Achmad et al. 2022). In addition, in 2020, the Indonesia Corruption Watch (ICW) reported two corruption cases valued at IDR 5 million losses at the ministry level and another three corruption cases in governmental agencies valued at IDR 1 billion loss and IDR 400 million bribery case. These reports indicate that

fraud perpetrators continue to commit fraudulent financial reporting in the public sector organisations.

In view of the increasing number of fraudulent financial reporting, researchers have attempted to identify the factors contributing to it in the public sector organisation using various approaches. One of the earliest approaches used to examine the factors influencing fraud is the fraud triangle theory (Setiyono 2019). The theory consists of three elements: pressure, opportunities, and rationalisation. It was later extended and known as the fraud diamond theory, in which one new element, capability, was added (Kusuma et al. 2017; Fadly et al. 2020). The theory was further improved by including arrogance as one of the elements. It was then known as the pentagon theory (Setianingsih and Fadilah 2019). The latest development of the fraud theory is the hexagon theory developed by Vousinas (2019), in which he included collusion as one of the elements. The hexagon theory has been used in recent studies focusing on private sector organisations (Aviantara 2021; Suryandari and Valentin 2021; Desviyana et al. 2020).

This study aimed to examine the factors influencing fraudulent financial reporting in Indonesia's ministerial and governmental institutions. It used the hexagon theory as the reference to examine the effect of pressure, opportunity, rationalisation, capability, arrogance, and collusion in determining whether these elements influence fraudulent financial reporting in these institutions. The findings in this study contribute to the existing literature and provide an understanding of the factors influencing fraudulent financial reporting in public organisations. Subsequently, they could lead to the formulation of strategies to mitigate such activities.

The next section presents the literature review. It is followed by an explanation of the research methodology, presentations of the results, and a discussion of the findings. The last section summarises and concludes this study.

2. Literature Review

Several definitions of fraudulent financial reporting have been provided in the literature. Fraudulent financial reporting can be defined as the intentional misrepresentation of an organisation's financial statements with the intention to mislead its stakeholders by giving a mistaken impression of its performance (Aboud and Robinson 2020). It can also be defined as fraudulent corporate reports and misapplication of accounting principles (Kaminski et al. 2004). The Association of Certified Fraud Examiners (ACFE) noted that fraudulent financial reporting occurs with the management's knowledge and consent (ACFE 2014), which is different from earnings management in terms of its acceptability of accounting treatment (Hasnan et al. 2014). However, according to Landsittel (2000), fraudulent financial reporting often starts out as earnings management and grows to become full-blown 'cooking the books'.

Fraudulent financial reporting is considered one of the considerable hindrances of an organisation's economic development, leading to low trust. Some studies have suggested several ways how fraudulent activities are conducted. For example, Achmad et al. (2022, p. 3) noted that fraudulent financial reporting includes "*manipulation, falsifying, or altering supporting documents and accounting records to prepare financial statements, omission, error or intentional obstruction of transactions, events or information leading to the presentation of financial statement.*" This definition is consistent with the American Institute of Certified Public Accountants' (AICPA 2011) definition that classified fraudulent financial reporting as a form of fraud often committed through: (a) manipulation, falsification, or alteration of accounting records or supporting documents from which a financial statement is made, (b) misrepresentation or financial statements, transactions, or other important information, and (c) intentional misapplication of accounting principle related to amounts, classification, presentation, or disclosure.

A body of the financial reporting literature has attempted to examine the factors influencing fraudulent financial reporting. The findings of these studies are often mixed. The pressure of personal financial needs (Ruankew 2016), external pressure (Evana et al.

2019; Situngkir and Triyanto 2020), and poor internal control (Apriliana and Agustina 2017) are among the factors that can influence fraudulent financial reporting. On the other hand, certain factors, such as external auditors and ineffective monitoring, do not influence fraudulent financial reporting (Achmad et al. 2022). These studies used different theories, although most of them used fraud-related theories, such as the fraud triangle theory or the fraud diamond theory. Examination of the factors influencing fraudulent financial reporting in the public sector organisations using the hexagon theory is still lacking.

Cressey (1953), who introduced the fraud triangle theory, suggested that one of the causes of fraud is pressure. Perceived pressure refers to the factors that lead to unethical behaviours often caused by stress (Suryandari and Valentin 2021). The higher the pressure, the more likely the individuals would commit fraud (Albretch et al. 2012). Pressure can be financial or non-financial pressure (Abdullahi and Mansoor 2015). The management may also find themselves being offered incentives or placed under pressure to commit fraud. For example, because remuneration or advancement is significantly affected by individual, divisional, or company performance, individuals may have an incentive to manipulate results or to put pressure on others to do so. Skousen et al. (2009) stated that pressure is stimulated when the organisational performance is below the average performance of other organisations. This condition indicates unstable operating activities, potentially leading to fraudulent financial reporting. In Indonesia, the financial performance achievement indicator for the ministerial and governmental institutions lies in fund absorption. Optimal fund absorption indicates that the financial management or the organisation has met the budget's target. Arguably, budget absorption made by overstating expenditures to achieve the budget's target occurs because it serves as an indicator of organisational performance, creating pressure for individuals to report a high budget absorption. Consequently, it leads to fraudulent financial reporting. Therefore, the following hypothesis was developed:

Hypothesis 1 (H1). *Pressure significantly and positively influences fraudulent financial reporting in the ministerial and governmental institutions in Indonesia.*

Pressure creates the motive for a crime to be committed, but the individual must also perceive that they have an opportunity to commit the crime without being caught. For an individual to commit fraud, the circumstances may be conducive to providing an opportunity for fraud to be perpetrated (Cressey 1953). SAS No. 99 states that opportunity can be derived from the nature of the company's industry. The nature of the industry sometimes provides opportunities for companies to commit fraud (Ramos 2003; Batrancea 2021). Opportunity can also be derived from a poor internal control system (Romney and Steinbart 2015; Huang et al. 2017). An organisation's poor internal control potentially opens an opportunity for management to commit fraudulent financial reporting, such as exploiting the gap in the internal control system to fulfil their personal needs. One of the organisational governance strategies to minimise fraud is the whistleblowing system. Aviantara (2021) stated that a whistleblowing system could drive organisations to protect their employees from committing financial statement fraud and, consequently, positively affects their reputation. Therefore, this study developed the following hypothesis:

Hypothesis 2 (H2). *Opportunity significantly and positively influences fraudulent financial reporting in ministerial and governmental institutions in Indonesia.*

Rationalisation is also one of the factors contributing to fraud. It refers to the justification an individual makes when committing fraud (Sari and Nugroho 2020). Policies requiring the achievement of a budget's target as a performance measurement may trigger individuals to rationalise their fraudulent actions. This condition occurs because the budget becomes one of the performance assessment parameters (Nichita and Batrancea 2012). Sari and Nugroho (2020) viewed rationalisation as a management justification when committing fraudulent financial reporting. This condition indicates that managements tend to look for reasons when justifying their action to defend their position or even escape the

consequences. Skousen et al. (2009) argued that auditor change and audit reports could be used to detect the management's rationalisation. The rationalisation of fraudulent financial reporting can be measured using the audit opinion, assuming that an audited financial statement is fraud-free, although the opinion is not related to fraudulent financial reporting. Organisations with an unqualified audit opinion are considered free from fraudulent financial reporting, thus turning the opinion into a rationalisation for fraudulent financial reporting. Therefore, this study developed the following hypothesis:

Hypothesis 3 (H3). *Rationalisation significantly and positively influences fraudulent financial reporting in ministerial and governmental institutions in Indonesia.*

The fraud triangle theory was extended to the fraud diamond theory to include the element of capability. Capability refers to an individual's ability to create a sophisticated strategy to secure the condition in order to gain profit and invite other individuals to commit the action (Marks 2012). Capability is associated with an individual's capacity to commit fraudulent financial reporting (Sari and Nugroho 2020) that may lead to fraud when supported by bad intentions since the individual can manipulate the financial statement by making fictitious expenditures. In other words, capability refers to the situation of having the necessary traits or skills and abilities for a person to commit fraud. The individual recognises the particular fraud opportunity and could turn it into reality. Position, intelligence, ego, coercion, deceit, and stress are the supporting elements of capability (Wolfe and Hermanson 2004). Wolfe and Hermanson (2004) stated that a director change represents the potential emergence of fraudulent financial reporting since this condition indicates the organisation's poor environment that causes the replacement of directors. However, a leader change could also be viewed as an organisation's attempt to eliminate leaders committing fraud in the organisation. In this context, leader changes potentially increase fraudulent financial reporting. Therefore, the following hypothesis was developed:

Hypothesis 4 (H4). *Rationalisation significantly and positively influences fraudulent financial reporting in ministerial and governmental institutions in Indonesia.*

Marks (2012) developed the pentagon theory to include arrogance as one of the elements of fraud. Marks viewed arrogance as an attitude stemming from the individuals' belief that the internal control system does not apply to a personal level. According to Hidayah and Saptarini (2019), arrogance is one of the most important aspects of fraud, given that an individual's fraud may be driven by confidence and narcissism. Arrogance represents the individuals' selfishness in believing that they can commit fraud, leading to high confidence that their actions would not be discovered (Aprilia 2017). One of the parameters to measure leaders' arrogance is their educational background. Educational background is needed to attain competitive advantages. Organisational leaders with a high educational background are considered capable of processing information quickly and accepting significant transformation in an organisation. Leaders with higher educational backgrounds potentially commit fraud as they are considered to have the intelligence required to fulfil their personal needs (Nichita et al. 2019). In addition, Vousinas (2019) stated that narcissistic individuals view themselves as more capable and unique and tend to overestimate their skills. Therefore, the following hypothesis was developed:

Hypothesis 5 (H5). *Arrogance significantly and positively influences fraudulent financial reporting in ministerial and governmental institutions in Indonesia.*

The hexagon theory introduced collusion as one of the elements, making the total elements of fraud six. Collusion is defined as a conspiracy between two or more people to commit a crime and protect each other from the consequences of their crime (Suryandari and Valentin 2021). Collusion is one of the causes of fraud, and one of the parameters to measure collusion is e-procurement. According to Aviantara (2021), collusion mostly

occurs in governmental organisations through procurement mechanisms. In this context, collusion occurs when business actors conspire to increase or decrease the quality of goods or services, which may negatively affect public trust and market competition. A system called e-procurement was developed to minimise the collusion practice to address this issue. Presidential Regulation no. 54 of 2010 on The Government Goods and Services Procurement stipulates that e-procurement, as the name implies, refers to the goods and services procurement that utilises information technology and electronic transaction according to the regulation. E-procurement was developed due to the failure and poor performance of the government's manual procurement system. In this study, the governmental organisations that have not provided an e-procurement system are considered potentially committing fraudulent financial reporting. Hence, the following hypothesis was developed:

Hypothesis 6 (H6). *Collision significantly and positively influences fraudulent financial reporting in ministerial and governmental institutions in Indonesia.*

3. Research Methodology

3.1. Sample Selection

The sample in this study was Indonesia's ministerial and governmental institutions. This study used the purposive sampling technique in selecting the sample units. Once they were chosen, their financial statements for 2018 to 2020 were extracted. The three-year period for the financial statements was chosen because Indonesia's Corruption Perceptions Index (CPI) had been somewhat established in 2018 and 2019, positioning the country at 89 and 85, respectively. However, Indonesia faced a huge fall in 2020, positioning further down to 102, indicating that the number of fraud cases during this year had increased, particularly in the public sector (Kinasih 2021). Between 2018 to 2020, there were 87 ministerial and governmental institutions. However, 55 of the institutions did not periodically publish their financial statement in those three years. Hence, they were excluded from this study. Therefore, the final number of financial statements used was 96 (32 institutions \times 3 years). Table 1 presents the sample selection of this study.

Table 1. Sample selection.

Criteria	Total
Number of ministerial and government institutions from 2018 to 2020.	87
Financial statements not available in the institutions' official websites from 2018 to 2020.	(55)
Incomplete financial statements for variable measurements.	(0)
Final number of institutions for analysis years 2018 to 2020.	32
Number of financial statements for 2018 to 2020 (3 \times 32)	96

3.2. Data Collection

This study relied on the content analysis method to analyse the factors influencing fraudulent financial reporting. In assembling the data for content analysis, the data from the financial statements of the 32 ministerial and governmental institutions were divided into seven categories representing each variable in this study. This study relied on the statement of profit and loss and the statement of financial position to obtain the data for the analysis. It adopted the measurement used by previous studies, such as Kusuma et al. (2017), Aviantara (2021), and Achmad et al. (2022), in measuring all the variables. The first category was fraudulent financial reporting. For this variable, this study utilised one of the eight indicators of the Beneish model (the leverage index) to measure fraudulent financial reporting in an organisational context due to data availability and governmental organisations having different characteristics. This study divided total debt over total assets to determine the leverage index.

The second category was pressure. It was measured based on the financial target represented by the percentage of budget realisation that had a negative effect on fraudulent financial reporting. The third category, opportunity, was measured based on the availability of a whistleblowing system in the websites. A government agency with a whistleblowing system in its website was coded 1, whilst the agency without the system in the website was coded 0. The fourth category was rationalisation. This study used audit opinion to measure rationalisation. The institutions with unqualified opinions were scored 1, and those obtaining other than unqualified opinions were scored 0. For capability, this study used leader changes as the measurement. The institutions undergoing leader changes were scored 1, or 0 otherwise. In terms of arrogance, this study used educational background. Ministers and institutional heads with doctoral degrees were scored 1, and those with lower educational backgrounds were scored 0. The last category was collusion. This study measured collusion in terms availability of an e-procurement system in the institutions' official websites. Institutions with the system in their official websites were scored 1, or 0 otherwise. Table 2 presents the variable measurements used in this study.

Table 2. Variable measurements.

Definition	Measurement	Scale
Fraudulent financial reporting	Leverage index = $\frac{\text{Total Debt}}{\text{Total Assets}}$	Ratio
Pressure	Pressure = $\frac{\text{Budget Realisation}}{\text{Budget Proposal}}$	Ratio
Opportunity	Availability of whistleblowing system Yes = 1 No = 0	Dummy
Rationalisation	Unqualified opinion = 1 Other than unqualified opinion = 0	Dummy
Capability	Undergoing leader changes = 1 Not undergoing leader changes = 0	Dummy
Arrogance	Ministers or heads with high educational background = 1 Ministers or heads with lower educational background = 0	Dummy
Collusion	Availability of e-procurement system in official website Yes = 1 No = 0	Dummy

3.3. Data Analyses

This study applied descriptive statistics, classical assumption test, the goodness of fit test, coefficient of determination test, and hypothesis test to analyse the data. The descriptive statistics described the variables' minimum, maximum, average, and standard deviation values. This study employed the OLS regression to test the proposed hypotheses using Eviews version 11. A classical assumption test was conducted to detect the data residue to obtain the best linear unbiased estimator (BLUE) in the OLS approach. The lowest residuals indicate a good regression model. The classical assumption tests in this study were multicollinearity, heteroscedasticity, and autocorrelation tests. The normality test was not conducted since the sample size of this study was more than 30 units (Gooper and Schindler 2013).

4. Results and Discussion

Table 3 presents the descriptive statistics of the variables of this study, including minimum, maximum, and mean values and standard deviation. Ninety-nine financial statements issued in 2018–2020 were observed, showing that the minimum fraudulent

financial reporting value was 0.0001 and the maximum value of 1.5026. The average value is 0.0765 with a standard deviation of 0.2514.

Table 3. Descriptive statistics.

Variable	Min.	Max.	Mean	Std. Dev
Fraudulent financial reporting	0.0001	1.5026	0.0765	0.2514
Pressure	0.6322	0.9933	0.9121	0.0804
Opportunity	0	1		
Rationalisation	0	1		
Capability	0	1		
Arrogance	0	1		
Collusion	0	1		

The minimum and maximum scores of the pressure variable are 0.6322 and 0.9933, respectively. The mean score is 0.9121 (standard deviation = 0.0804). The other variables, i.e., opportunity, rationality, capability, arrogance, and collusion, were categorical. Thus, the mean scores and standard deviations were not estimated. As mentioned earlier, this study applied the classical assumption test to obtain the BLUE model in drawing a more robust conclusion regarding the proposed hypothesis. Tables 4 and 5 present the results of the multicollinearity test and autocorrelation tests, respectively. Table 4 shows that the VIF scores of pressure, opportunity, rationalisation, capability, arrogance, and collusion variables are less than 10, indicating no correlation among the independent variables in this study. In other words, this study is free from multicollinearity. The Durbin–Watson statistical score in Table 5 (0.6049) is within the -2 to 2 range, indicating no autocorrelation among the independent variables.

Table 4. Multicollinearity analyses.

Variable	Value	Parameter VIF	Conclusion
Pressure	1.4858	VIF < 10	No multicollinearity
Opportunity	1.4858	VIF < 10	No multicollinearity
Rationalisation	2.0566	VIF < 10	No multicollinearity
Capability	2.2828	VIF < 10	No multicollinearity
Arrogance	1.8680	VIF < 10	No multicollinearity
Collusion	2.0950	VIF < 10	No multicollinearity

Table 5. Autocorrelation analyses.

Value	Durbin-Watson Parameter	Conclusion
0.6049	-2 to 2	No autocorrelation

This study tested the regression model for the goodness of fit. Table 6 displays the model fit test result. From Table 6, the F-statistic is 7.9797 ($p = 0.000$, <0.05), indicating that the regression model has met the model fit. The coefficient of determination test was also conducted to measure the magnitude of the independent variables' effect on the dependent variable.

Table 6. Model Fit Test.

F-Stat.	Sig.	Conclusion
7.9794	0.0000	Fit

Table 7 displays the test's results. The adjusted R^2 of 0.3059 shows that the independent variables in this study affect the dependent variables by 30.59%.

Table 7. Coefficient of determination test.

R ²	Adjusted R ²
0.3497	0.3059

Table 8 displays the results of testing the hypotheses developed in this study. The first hypothesis (H1) in this study states that pressure significantly and positively influences fraudulent financial reporting in Indonesia's ministerial and governmental institutions. The results in Table 8 show a coefficient value of 0.0891 (t -stat = 0.417; p = 0.6773, >0.05). This result suggests that pressure does not significantly affect fraudulent financial reporting in the ministerial and governmental organisations in Indonesia. Hence, H1 is not supported. This finding is similar to that of [Apriliana and Agustina \(2017\)](#), who found that pressure does not significantly affect fraudulent financial reporting. However, it contradicts the findings of other previous studies, such as that of [Suryandari and Valentin \(2021\)](#), who found that pressure (internal or external) creates an urge to commit an unlawful act. The finding of this study could be due to government expenditure being supported by effectively supervised financial policies. Thus, a high budget absorption represents the optimisation of the planned program.

Table 8. Hypothesis testing results.

Independent Variable	Dependent Variable: Fraudulent Financial Reporting			Conclusion
	Coef.	t -Stat.	Sig. (p)	
Constant	−0.1514	−0.7389	0.4619	
Pressure (H1)	0.0891	0.4174	0.6773	Not Supported
Opportunity (H2)	0.2986	2.3584	0.0205	Supported
Rationalisation (H3)	0.0033	0.1563	0.8762	Not Supported
Capability (H4)	0.0335	0.9951	0.3224	Not Supported
Arrogance (H5)	0.0874	2.1457	0.0346	Supported
Collusion (H6)	0.2807	2.0792	0.0405	Supported

The second hypothesis (H2) developed in this study states that opportunity significantly and positively influences fraudulent financial reporting in Indonesia's ministerial and governmental institutions. The results shows that the coefficient value for opportunity is 0.2986 (t -stat = 2.3584; p = 0.0205, <0.05), suggesting a significant positive influence on fraudulent financial reporting in the institutions. Hence, this study supports H2. This finding is similar to those of [Faradiza \(2019\)](#) and [Apriani \(2020\)](#). A whistleblowing system is specifically designed to minimise fraud. It can encourage organisations to prevent their employees from committing fraudulent financial reporting ([Aviantara 2021](#)). Therefore, the system is important in an organisation to prevent fraudulent financial reporting.

Next, the third hypothesis (H3) states that rationalisation significantly and positively influences fraudulent financial reporting in the ministerial and governmental institutions of Indonesia. The results for H3 show a coefficient value of 0.0033, with t -statistics of 0.1563 and a significant value of 0.8762 (>0.05). These results suggest that rationalisation does not affect fraudulent financial reporting in these institutions. Thus, H3 is not supported. This finding is consistent with that of [Larum et al. \(2021\)](#), who reported that rationalisation does not influence fraudulent financial reporting. However, the finding is inconsistent with that of [Sari and Nugroho \(2020\)](#), who suggested that rationalisation is a management justification when committing fraudulent financial reporting. Based on this result, the multiple regression equation for this study is:

$$\text{Fraudulent financial reporting} = -0.1514 + 0.0891 \text{ Pressure} + 0.2986 \text{ Opportunity} + 0.0033 \text{ Rationalisation} + 0.0335 \text{ Capability} + 0.0874 \text{ Arrogance} + 0.2897 \text{ Collusion}$$

This study also hypothesised that capability significantly and positively influences fraudulent financial reporting in Indonesia's ministerial and governmental institutions (H4). The results in Table 8 show that the coefficient value for capability is 0.0335, with *t*-statistics of 0.9951 and a significant value of 0.3224 (>0.05). These results show that capability does not significantly affect fraudulent financial reporting in the ministerial and governmental institutions in Indonesia. Therefore, H4 is not supported. The capability was measured based on leader changes, constituting a part of the organisation's efforts to improve its performance because the previous leader's decision was deemed inefficient and ineffective. However, the results indicate that leader changes are not associated with fraud in organisations. The finding is consistent with [Apriliana and Agustina \(2017\)](#), which found that capability does not significantly affect fraudulent financial reporting.

Hypothesis five (H5) states that arrogance significantly and positively influences fraudulent financial reporting in Indonesia's ministerial and governmental institutions. The results of testing this hypothesis show a coefficient value of 0.0874 for arrogance (*t*-stat = 2.1457; *p* = 0.0346, <0.05). They suggest that arrogance has a significant positive influence on fraudulent financial reporting in these institutions, supporting H5. The finding is similar to [Zuberi and Mzenzi \(2019\)](#) and [Larum et al. \(2021\)](#), which found that arrogance positively and significantly affects fraudulent financial reporting.

The last hypothesis is hypothesis six (H6), which states that collusion significantly and positively influences fraudulent financial reporting in Indonesia's ministerial and governmental institutions. The results show a coefficient value of 0.2807, with *t*-statistics of 2.0792 and a significant value of 0.0405 (<0.05), suggesting that collusion positively and significantly affects fraudulent financial reporting in these institutions in Indonesia. This finding is consistent with [Susandra and Hartina \(2018\)](#), which found that collusion positively affects fraudulent financial reporting. It also indicates that having an e-procurement system may lower the potential for fraudulent financial reporting. Therefore, H6 is supported.

This study analysed the effect of the significant factors on fraudulent financial reporting in the ministerial and government institutions as further evidence. Table 9 presents the results of the analysis showing that three variables (opportunity, arrogance, and collusion) remain significant factors to fraudulent financial reporting in the ministerial and governmental institutions.

Table 9. Hypothesis testing results for H2, H5, and H6.

Independent Variable	Dependent Variable: Fraudulent Financial Reporting			Conclusion
	Coef.	<i>t</i> -Stat.	Sig.	
Constant	−0.051038	−1.530369	0.1294	
Opportunity	0.298299	2.380593	0.0193	Supported
Arrogance	0.077600	2.137718	0.0352	Supported
Collusion	0.270104	2.133635	0.0355	Supported

Table 10 displays the coefficient of determination test results taking into account only the significant factors. The adjusted R^2 of 0.3253 shows that the three independent variables affect the dependent variable by 32.53%. Based on the size effect, the adjusted R^2 has increased from 0.3059 (see Table 7) to 0.3253, an increase of 0.0194.

Table 10. Coefficient of determination test.

R^2	Adjusted R^2
0.346580	0.3253

This study further proceeds to perform the stepwise regression analysis in order to select the best group of predictor variables that account for the most variation of the outcome. Table 11 shows the model summary of the analysis. For model 1, the result shows that opportunity accounts for 21% of the variation, whilst model 2, which includes opportunity and arrogance, accounts for 22% of the variation. Model 3 on the other hand, which includes opportunity, arrogance, and collusion, accounts for the highest amount of variation, which is 35%.

Table 11. Model Summary.

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1	0.457 ^a	0.209	0.201	0.2248041
2	0.471 ^b	0.222	0.205	0.2241532
3	0.589 ^c	0.347	0.325	0.2065689

a. Predictors (Constant), Opportunity. b. Predictors (Constant), Opportunity, Arrogance. c. Predictors (Constant), Opportunity, Arrogance, Collusion.

The results of R square change in Table 11 show the change between the models when adding in new predictor variables. The addition variation when adding new predictor between model 1 and model 2 is 0.013 (0.222–0.209) and between model 2 and model 3 is 0.125 (0.347–0.222). As shown in Table 12, all of the predictor variables are significantly significant at 0.000.

Table 12. ANOVA.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.257	1	1.257	24.880	0.000 ^a
	Residual	4.750	94	0.051		
	Total	6.008	95			
2	Regression	1.335	2	0.668	13.286	0.000 ^b
	Residual	4.673	93	0.050		
	Total	6.008	94			
3	Regression	2.082	3	0.694	16.265	0.000 ^c
	Residual	3.926	92	0.043		
	Total	6.008	95			

a. Predictors (Constant), Opportunity. b. Predictors (Constant), Opportunity, Arrogance. c. Predictors (Constant), Opportunity, Arrogance, Collusion.

Table 13 displays the results of coefficients for all three models. Model 1 shows that the predictor variable of opportunity has a significant value of 0.000. A similar result is shown in model 2, which shows that opportunity has a significant value of 0.000 but not on the predictor variable of arrogance (0.217). In model 3, opportunity and collusion play a significant predictor to fraudulent financial reporting, showing a significant value of 0.000, but not on the predictor variable of arrogance (0.107), despite the fact that, in the earlier model, arrogance has a significant relationship on fraudulent financial reporting.

Table 13. Coefficients.

Model		Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	Sig.
		β	Std Error	β		
1	(Constant)	0.033	0.025		1.359	0.177
	Opportunity	0.346	0.069	0.457	4.988	0.000
2	(Constant)	−0.013	0.044		−0.284	0.777
	Opportunity	0.338	0.069	0.447	4.873	0.000
	Arrogance	0.064	0.052	0.114	1.244	0.217
3	(Constant)	−0.051	0.042		−1.220	0.225
	Opportunity	0.298	0.065	0.394	4.608	0.000
	Arrogance	0.078	0.048	0.138	1.626	0.107
	Collusion	0.270	0.065	0.357	4.184	0.000

5. Conclusions

This study examined the factors influencing fraudulent financial reporting in ministerial and governmental institutions in Indonesia. It utilised the financial statements of 32 ministerial or governmental institutions over three years from 2018 to 2020. Based on the hexagon theory, which has six fraud elements, this study found that opportunity, arrogance, and collusion positively and significantly affect fraudulent financial reporting in Indonesia's ministerial and governmental institutions. On the other hand, pressure, rationalisation, and capability have no significant effect on fraudulent financial reporting in these institutions. The findings implicate that the elements of opportunity, arrogance, and collusion need to be given more attention as they potentially lead to fraudulent financial reporting.

This study has several limitations. First, the small sample size used in this study may limit the generalisation to all Indonesian ministerial and governmental institutions. However, future studies may replicate similar studies with small sample sizes using more advanced analyses. Alternatively, they could conduct their studies using bigger sample sizes. Secondly, this study confirms only three independent variables, namely opportunity, arrogance and collusion, influencing fraudulent financial reporting. Therefore, future studies might consider the data availability to obtain broader generalisation and a more comprehensive conclusion of the research results. It is also recommended to develop measurements of several independent variables not limited to the dummy variables used in this study. Finally, future studies are recommended to confirm all elements of hexagon theories using different samples, such as regency, municipal, and provincial governments.

Table 14 provides a comparative analysis of a few previous studies and this study in relation to the determinants of fraudulent financial reporting in the public sector. It can be seen that most of the findings of the previous studies are somewhat similar to this study. A '+' sign indicates significant influence on fraudulent financial reporting in the public sector, whereas a '-' sign indicates no significant influence on fraudulent financial reporting in the public sector.

In summary, this study confirms several elements of the hexagon theory that cause fraudulent financial reporting in the ministerial and governmental institutions in Indonesia. The whistleblowing system, used to measure opportunity, needs further attention from the government to mitigate fraudulent practices. This study also shows that the ministerial and governmental institutions that have not implemented the whistleblowing systems potentially would commit fraudulent financial reporting.

Table 14. Comparative analysis on determinants of fraudulent financial reporting in the public sector.

Study\Variable	Pressure	Opportunity	Rationalisation	Capability	Arrogance	Collusion
Apriliana and Agustina (2017)	-			-		
Susandra and Hartina (2018)		+	-			+
Hidayah and Saptarini (2019)	+	-	-			
Faradiza (2019)	+	+	-	+	-	
Zuberi and Mzenzi (2019)	+		+			
Aboud and Robinson (2020)	+	+	+	+		
Sari and Nugroho (2020)	-	-	+	-	+	+
Suryandari and Valentin (2021)	+	-	+		+	
Larum et al. (2021)	+	-	-	+	+	-
Achmad et al. (2022)	+			-	-	-
This study	-	+	-	-	+	+

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