Published by Yayasan Amerta Insan Unggul

DOI: 10.65246

p-ISSN 3063-9840 | e-ISSN 3063-8194

GoodWill Journal of Economics, Management, and Accounting

journal homepage: https://jurnal.amertainstitute.com/index.php/GoodWill/index



Sustainability Report Disclosure Using the Fraud Hexagon Model: Stakeholder Pressure as a Moderating Variable

Muhammad Rusli[1], Rahman Pura[2], Eva Marin Sambo[3]
Sekolah Tinggi Ilmu Ekonomi Makassar Bongaya
Email: rusli.muhammad476@gmail.com; rahmanpura@stiem-bongaya.ac.id; evamarin.sambo@stiem-bongaya.ac.id

ARTICLE INFO

Keywords:
Fraud Hexagon;
Stakeholder Pressure;
Sustainability Reporting Disclosure

Publication History:
Received: 20 May 2026
Screening: 05 May 2026
Review: 28 June 2026
Revision requested: 28 July 2026
Revised: 10 August 2026
Accepted: 31 October 2026

ABSTRACT

This study aims to examine the influence of the Fraud Hexagon framework on sustainability reporting practices within Indonesia's palm oil sector, while assessing the moderating role of stakeholder pressure. The Fraud Hexagon, consisting of pressure, opportunity, rationalization, competence, arrogance, and collusion, provides a comprehensive theoretical lens to explain fraudulent tendencies in corporate disclosure. Stakeholder pressure, originating from investors, regulators, and civil society, is expected to strengthen or weaken the relationship between Fraud Hexagon elements and the quality of sustainability reporting. A quantitative approach was employed using panel data from palm oil companies covering the period 2020–2025. Data analysis was conducted through Structural Equation Modeling (SEM) based on Partial Least Squares (SmartPLS) and Moderated Regression Analysis (MRA) to test the proposed hypotheses. This study reveals that among the six dimensions of the Fraud Hexagon, only pressure and opportunity have a significant influence on sustainability reporting disclosure. Conversely, the dimensions of rationalization, capability, arrogance, and collusion show no significant effect, indicating that in the palm oil sector, internal behavioral factors of management are not always the primary determinants of sustainability reporting practices. Furthermore, the moderation test results demonstrate that stakeholder pressure only moderates the relationship between opportunity and sustainability reporting disclosure. Stakeholder pressure weakens the effect of opportunity, meaning that the chances companies have to manipulate disclosure are more controlled by external expectations. However, stakeholder pressure does not moderate the relationships between pressure, rationalization, capability, arrogance, or collusion and sustainability reporting disclosure.

1. Introduction

The Sustainability reporting has become an important instrument for corporate accountability amid growing global concerns about environmental, social, and governance (ESG) issues. Initially adopted voluntarily as a form of corporate social responsibility, sustainability reporting has increasingly developed into a strategic disclosure mechanism in response to stakeholder demands for transparency and accountability. International frameworks, including the Global Reporting Initiative (GRI) (2026), the Sustainability Accounting Standards Board (SASB), and the Sustainable Development Goals (SDGs), encourage companies to disclose comprehensive, measurable, and comparable sustainability information. In Indonesia, this development has been reinforced by the Financial Services Authority Regulation No. 51/POJK.03/2017 concerning the implementation of sustainable finance, which requires relevant financial institutions, issuers, and public companies to prepare sustainability reports. Consequently, sustainability reporting serves not only as a communication tool but also as a means of strengthening corporate reputation, attracting investors, and demonstrating long-term commitment to sustainable business practices. Previous research has also highlighted the increasing adoption of environmental, social, and sustainability disclosures in corporate reporting.

The palm oil industry provides a particularly relevant context for examining sustainability reporting because of its significant environmental and social impacts, including deforestation, carbon

DOI: 10.65246

emissions, and conflicts with local communities. Companies in this sector face increasing demands from governments, investors, consumers, international organizations, and local communities to demonstrate responsible business practices. Nevertheless, a potential gap remains between external sustainability expectations and actual corporate practices. Although companies may publish sustainability reports aligned with international standards, some disclosures may emphasize corporate image rather than reflect substantive environmental and social performance, raising concerns about greenwashing. This situation highlights the need to investigate the factors influencing sustainability reporting disclosure and the extent to which external stakeholder pressure can constrain potentially misleading reporting practices.

Preliminary observations of selected palm oil companies listed on the Indonesia Stock Exchange (IDX) indicate variations in sustainability reporting disclosure during 2022–2024. Table 1 presents the number of disclosed items and the Sustainability Report Disclosure Index (SRDI) for five companies. The data illustrate differences in disclosure levels across companies and reporting periods, providing an empirical basis for examining the determinants of sustainability reporting disclosure.

Table 1. Sustainability Reporting Disclosure of Palm Oil Companies, 2022–2024

No.	Code	Company	2022 Number of Items	2022 SRDI	2023 Number of Items	2023 SRDI	2024 Number of Items	2024 SRDI
1	AALI	PT Astra Agro Lestari Tbk	91	77,8%	91	77,8%	91	77,8%
2	BWPT	PT Eagle High Plantations Tbk	59	50,4%	88	75,2%	96	82,1%
3	CSRA	PT Cisadane Sawit Raya Tbk	10	8,5%	10	8,5%	38	32,5%
4	DSNG	PT Dharma Satya Nusantara Tbk	93	79,5%	93	79,5%	93	79,5%
5	FAPA	PT FAP Agri Tbk	108	92,3%	107	91,5%	86	73,5%

Source: Processed by the researchers based on research data.

The table reveals that disclosure patterns differed considerably among the observed companies. PT Eagle High Plantations Tbk increased its disclosed items from 59 in 2022 to 96 in 2024, while PT Cisadane Sawit Raya Tbk increased its disclosed items from 10 to 38 over the same period. In contrast, PT FAP Agri Tbk recorded a decline from 108 items in 2022 to 86 in 2024. Meanwhile, PT Astra Agro Lestari Tbk and PT Dharma Satya Nusantara Tbk maintained consistent disclosure levels throughout the observation period. These differences suggest that sustainability reporting practices are not uniform across companies, even within the same industry. The developments surrounding Indonesian Sustainable Palm Oil (ISPO) and Roundtable on Sustainable Palm Oil (RSPO) standards, growing concerns about greenwashing, and increasing international demands for transparency further underscore the importance of examining the factors underlying these variations.

The Fraud Hexagon framework provides a theoretical perspective for investigating potential determinants of sustainability reporting disclosure. This framework comprises six dimensions: pressure, opportunity, rationalization, capability, arrogance, and collusion. It extends fraud-related analysis beyond conventional explanations by considering the pressures and opportunities that may encourage misconduct, management's justification of questionable practices, individuals' ability to exploit system weaknesses, excessive managerial confidence, and cooperation among parties to conceal irregularities. In sustainability reporting, these dimensions may help explain why companies disclose incomplete or potentially misleading information. Agency Theory further explains how

DOI: 10.65246

information asymmetry and conflicts of interest between management and principals can encourage biased reporting when monitoring mechanisms are inadequate. Transparent sustainability disclosure can reduce information asymmetry and strengthen accountability to investors, regulators, and the public. Agency Theory also provides a basis for understanding how weaknesses in oversight may create conditions for fraudulent behavior (Aprilia, 2017).

Nevertheless, internal organizational factors alone may not fully explain sustainability reporting practices. Stakeholder Theory emphasizes the relationships between companies and the parties affected by their activities. The importance of stakeholders in corporate decision-making, while subsequent research identifies stakeholder expectations as a driver of sustainability disclosure (Darmawan & Idawati, 2023). In this context, stakeholder pressure originates from investors demanding transparent information, consumers favoring environmentally responsible products, regulators enforcing disclosure requirements, civil society organizations monitoring corporate conduct, and local communities seeking protection of their social and environmental interests. Such pressure may function as an external monitoring mechanism that strengthens corporate accountability and constrains opportunities for misleading disclosure.

Existing research provides a foundation for examining these relationships but leaves several questions unresolved. Studies on fraud have primarily focused on financial statement manipulation rather than sustainability reporting. Rahmawati and Utami (2023), in their study of the Fraud Hexagon framework for detecting potential financial statement fraud, found that pressure, measured through external pressure, influenced financial statement fraud. This finding was supported by Syurmita et al. (2024) but contradicted by Bifadli et al. (2022), who found no significant effect of pressure on financial statement fraud. These inconsistent findings indicate the need for further investigation into fraud-related factors in a different disclosure context. Research on sustainability reporting has also examined stakeholder-related determinants. Darmawan and Idawati (2023) found that environmentally sensitive industries were associated with sustainability report quality, while Sriningsih and Wahyuningrum (2022) examined the influence of comprehensive stakeholder pressure and good corporate governance on sustainability report quality. However, the role of stakeholder pressure as a moderator of the relationship between Fraud Hexagon dimensions and sustainability reporting disclosure remains insufficiently explored, particularly among palm oil companies listed on the IDX.

Accordingly, this study examines the influence of the six Fraud Hexagon dimensions pressure, opportunity, rationalization, capability, arrogance, and collusion on sustainability reporting disclosure and investigates whether stakeholder pressure moderates these relationships among palm oil companies listed on the IDX during 2020–2025. The study integrates the Fraud Hexagon framework with Stakeholder Theory to provide a more comprehensive explanation of how internal fraud-related factors and external stakeholder demands interact in shaping corporate disclosure practices. Its theoretical contribution lies in extending the application of the Fraud Hexagon framework from financial statement fraud to sustainability reporting disclosure while examining stakeholder pressure as a moderating mechanism. Practically, the findings are expected to inform corporate management, investors, regulators, and other stakeholders about the factors associated with sustainability reporting disclosure and the potential role of external monitoring in improving transparency and accountability. By focusing on the palm oil sector, this study addresses an important industry-specific research gap and contributes to a better understanding of sustainability reporting practices in an industry facing substantial environmental and social scrutiny.

2. Literature Review

2.1. Conceptual and Theoretical Foundations

2.1.1. Fraud Hexagon Theory

Fraud Hexagon Theory provides the principal analytical framework for examining the relationship between internal fraud-related factors and sustainability reporting disclosure. The development of fraud theory began with the Fraud Triangle, which identifies pressure, opportunity, and rationalization as the conditions that may encourage fraudulent behavior. The framework was subsequently expanded through the Fraud Diamond, which introduced capability as an additional factor,

DOI: 10.65246

emphasizing that individuals require the ability to exploit organizational weaknesses and conceal misconduct. The Fraud Pentagon further incorporated competence and arrogance into the explanation of fraudulent behavior (Ulfah et al., 2017). These developments culminated in the Fraud Hexagon, which incorporates six dimensions: pressure, opportunity, rationalization, capability, arrogance, and collusion (Desviana et al., 2020).

The six dimensions offer complementary explanations of potential misconduct in corporate reporting. Pressure refers to incentives or demands that encourage management to achieve particular outcomes. Opportunity arises when weaknesses in controls or monitoring create conditions that facilitate manipulation. Rationalization refers to the justification of questionable actions, while capability concerns an individual's ability to exploit weaknesses and execute misconduct. Arrogance reflects a sense of superiority that may lead individuals to disregard controls, whereas collusion involves cooperation between parties to facilitate or conceal improper conduct (Vousinas, 2019).

In this study, the six dimensions are operationalized through specific proxies. Pressure is represented by external pressure measured using the debt-to-equity ratio, following the approach associated with Syurmita et al. (2024). Opportunity is represented by the nature of industry, measured through changes in the inventory-to-sales ratio. Rationalization is proxied by changes in the public accounting firm. Capability is represented by changes in directors, following Syurmita et al. (2024). Arrogance is measured through the frequency of the chief executive officer's photographs in annual reports, drawing on Bifadli et al. (2022). Finally, collusion is proxied by disclosed cooperation with the government, measured against the relevant indicators of government cooperation in the Global Reporting Initiative (GRI) framework.

The application of Fraud Hexagon Theory to sustainability reporting extends its use beyond conventional financial statement fraud. Sustainability disclosures can be affected by managerial incentives, opportunities to provide selective information, and weaknesses in accountability mechanisms. Accordingly, the framework provides a basis for examining whether the six fraud-related dimensions are associated with sustainability reporting disclosure in palm oil companies.

2.1.2. Agency Theory

Agency Theory explains the relationship between principals, who provide capital or delegate authority, and agents, who manage organizational resources and operations. The foundational perspective for understanding conflicts that may arise when the interests of principals and agents differ. In the corporate context, shareholders expect management to protect organizational resources and achieve appropriate returns, while managers may also pursue personal interests. Such conflicts can create information asymmetry and opportunities for misleading reporting (Rahmawati & Utami, 2023).

Differences in the interests of principals and agents can create incentives for misconduct, particularly when monitoring mechanisms are inadequate. The tendency to prioritize personal interests can further contribute to opportunistic behavior. For example, managers who cannot meet performance expectations may manipulate corporate information to preserve their reputation or conceal unfavorable results. These risks make fraud prevention and effective monitoring important concerns in corporate governance.

In the present study, Agency Theory explains why internal fraud-related factors may be associated with sustainability reporting disclosure. Managers may have incentives to present favorable environmental, social, and governance information, even when such information does not fully reflect organizational practices. The six Fraud Hexagon dimensions therefore provide a framework for examining potential internal conditions associated with disclosure behavior, while sustainability reporting serves as an important channel through which stakeholders evaluate corporate accountability.

2.1.3. Stakeholder Theory and Stakeholder Pressure

Stakeholder Theory emphasizes that corporate responsibilities extend beyond shareholders to include employees, consumers, communities, government institutions, and other parties affected by organizational activities. Maintaining constructive relationships with these groups is important for organizational continuity and social acceptance (Tsuraya & Ghozali, 2025). Sustainability reporting provides a mechanism for communicating corporate initiatives and impacts relating to economic, social, and environmental

DOI: 10.65246

performance.

The relationship between stakeholder interests and sustainability disclosure is also reflected in the argument that sustainability reports communicate corporate social and environmental initiatives and their consequences to relevant stakeholders (Pratiwi & Lastiati, 2023). Stakeholder pressure arises when interested parties demand transparency, regulatory compliance, and responsible business conduct. These demands may encourage companies to provide more comprehensive disclosures and may constrain opportunities to present misleading information.

Stakeholder pressure in this study comprises four dimensions: environmental-sensitive industry, consumer-proximity industry, investor-oriented industry, and employee-oriented industry. Environmental-sensitive industry concerns the disclosure of environmental impacts; consumer-proximity industry concerns information about product safety, marketing, and customer privacy; investor-oriented industry concerns economic performance and risks relevant to investors; and employee-oriented industry concerns labor, occupational health and safety, and employee development. The measurement approach draws on previous studies of stakeholder pressure and sustainability reporting quality (Sriningsih & Wahyuningrum, 2022, as cited in Darmawan & Idawati, 2023).

Stakeholder pressure is positioned as a moderating variable because its influence may depend on the internal conditions faced by a company. Strong external scrutiny may constrain opportunities for selective disclosure, while its effect on other fraud-related dimensions may differ. Integrating Stakeholder Theory with Fraud Hexagon Theory therefore allows this study to examine the interaction between internal fraud-related factors and external accountability demands.

2.1.4. Sustainability Reporting Disclosure

Sustainability reporting integrates nonfinancial information concerning a company's environmental, social, and economic impacts into corporate accountability practices. The concept is associated with the Triple Bottom Line, which emphasizes the interrelationship between society, the economy, and the environment (Sejati, 2014). Earlier work also describes sustainability reporting as a means of communicating social and environmental performance alongside financial information (Sejati, 2014.

Sustainability reporting is relevant to corporate transparency because it enables stakeholders to evaluate the extent to which companies disclose their impacts and sustainability initiatives. In this study, sustainability reporting disclosure is the dependent variable and is measured using the Sustainability Reporting Disclosure Index (SRDI), based on the 91 items of the Global Reporting Initiative G4 framework. The measurement follows Tsuraya and Ghozali (2025). The index is intended to represent the extent of disclosure against the selected reporting items.

For the palm oil industry, sustainability reporting is particularly relevant because corporate activities involve environmental, economic, and social considerations. Differences in disclosure practices may reflect variations in managerial decisions, monitoring conditions, and stakeholder expectations. Sustainability reporting disclosure is therefore examined in relation to the six Fraud Hexagon dimensions, with stakeholder pressure included to determine whether external demands alter these relationships.

2.2. Review of Empirical Studies

Previous studies have examined the Fraud Hexagon framework primarily in the context of financial statement fraud, while research on sustainability reporting has more often focused on stakeholder pressure and corporate governance. Comparing these research streams helps identify both consistent findings and unresolved questions concerning the determinants of sustainability reporting disclosure.

Table 2. Summary of Previous Empirical Studies

Authors	Research focus	Principal findings	Relevance to the present study

DOI: 10.65246

Rahmawati and Utami (2023)	Fraud Hexagon and potential financial statement fraud	Financial stability, external pressure, financial targets, opportunity, rationalization, capability, arrogance, and collusion were reported to influence potential financial statement fraud.	Provides a basis for examining the six Fraud Hexagon dimensions in a different disclosure context.
Syurmita et al. (2024)	Fraud Hexagon and financial reporting fraud	The study reported effects associated with financial stability, financial targets, external pressure, capability, ineffective monitoring, nature of industry, rationalization, arrogance, and collusion.	Provides supporting evidence for investigating the proposed fraud-related factors.
Bifadli et al. (2022)	Fraud Hexagon and financial statement fraud	External pressure, personal financial need, director changes, state-owned enterprise status, ineffective monitoring, auditor changes, and the frequency of CEO photographs were reported as nonsignificant, whereas nature of industry was significant.	Demonstrates that findings for individual fraud proxies are not consistent across studies.
Darmawan and Idawati (2023)	Stakeholder pressure, shareholding structure, and sustainability report quality	Environmental-sensitive industry, consumer-proximity industry, and creditor pressure had positive relationships with sustainability report quality. Investor-oriented industry, employee-oriented industry, managerial ownership, and institutional ownership were not significant.	Provides evidence of the differing relationships between stakeholder-related factors and sustainability reporting quality.
Sriningsih and Wahyuningrum (2022)	Comprehensive stakeholder pressure, corporate governance, and sustainability report quality	Consumer-proximity industry, environmental-sensitive industry, and media exposure were positively associated with sustainability report quality. Investor-oriented industry, employee-oriented industry, creditor pressure, and government pressure were not significant. Other governance variables showed differing relationships.	Demonstrates that the relationship between stakeholder pressure and sustainability reporting quality depends on the dimension examined.

Source: Synthesized from the studies cited in the research manuscript.

The empirical evidence reveals two important patterns. First, studies of financial statement fraud do not consistently identify the same significant Fraud Hexagon dimensions. For example, Rahmawati and Utami (2023) and Syurmita et al. (2024) reported relationships between several fraud-related factors and financial reporting fraud, whereas Bifadli et al. (2022) found that a number of individual proxies were not significant. These differences indicate that findings from financial reporting cannot automatically be generalized to sustainability reporting.

Second, research on stakeholder pressure suggests that its dimensions do not contribute uniformly to sustainability report quality. Darmawan and Idawati (2023) identified positive relationships for environmental-sensitive industry, consumer-proximity industry, and creditor pressure, whereas Sriningsih and Wahyuningrum (2022) found positive relationships for consumer-proximity industry, environmental-sensitive industry, and media exposure. These results suggest that stakeholder influence may depend on the source of pressure and the organizational context.

Although these studies provide a foundation for the present research, they do not directly establish whether stakeholder pressure changes the relationships between the six Fraud Hexagon

DOI: 10.65246

dimensions and sustainability reporting disclosure. Furthermore, the evidence from palm oil companies remains particularly relevant because of the industry's environmental and social implications. The present study addresses this issue by integrating fraud-related factors and stakeholder pressure within a single empirical framework.

2.3. Identification of the Research Gap

Three related gaps motivate this study. First, the Fraud Hexagon literature reviewed in the source manuscript primarily addresses financial statement fraud rather than sustainability reporting disclosure. The extent to which pressure, opportunity, rationalization, capability, arrogance, and collusion are associated with sustainability reporting therefore requires separate empirical examination.

Second, previous sustainability reporting studies have examined stakeholder pressure as a determinant of reporting quality, but the reviewed evidence provides limited direct explanation of its role as a moderator between internal fraud-related factors and disclosure. Treating stakeholder pressure as a moderating variable allows the present study to examine whether external accountability demands alter the relationships between individual Fraud Hexagon dimensions and sustainability reporting disclosure.

Third, the present study focuses on palm oil companies listed on the Indonesia Stock Exchange during 2020–2025. This context allows the research to examine disclosure practices in an industry facing substantial environmental and social scrutiny. By integrating Fraud Hexagon Theory, Agency Theory, and Stakeholder Theory, the study contributes a framework for examining the relationships between internal fraud-related conditions, external stakeholder demands, and sustainability reporting disclosure.

2.4. Development of the Conceptual Framework

The conceptual framework positions the six Fraud Hexagon dimensions as independent variables and sustainability reporting disclosure as the dependent variable. Stakeholder pressure is included as a moderator of each relationship.

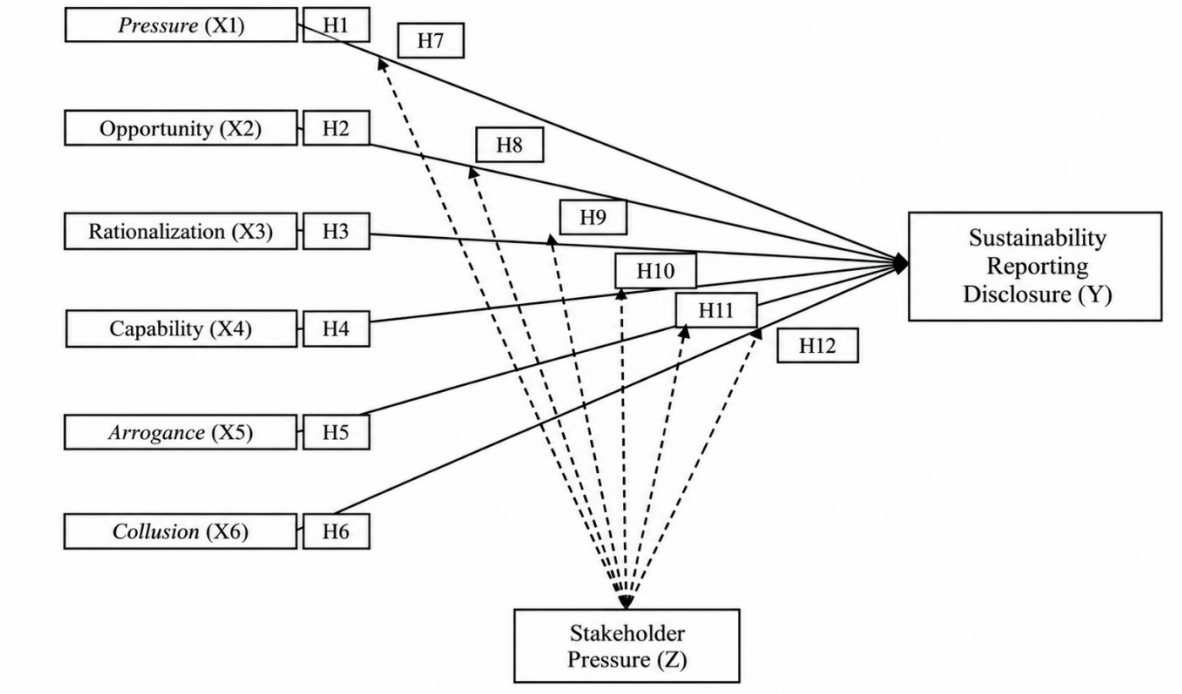


Fig. 1. Conceptual Framework of the Study

2.5. Hypotheses Development

2.5.1. Pressure and Sustainability Reporting Disclosure

Pressure may arise when management faces external demands to meet financial expectations, obtain additional financing, maintain competitiveness, or satisfy debt obligations. The American Institute of Certified Public Accountants identifies excessive pressure to meet third-party expectations and financing requirements as circumstances that may increase the risk of fraudulent financial reporting (AICPA, 2022). In this

DOI: 10.65246

study, external pressure is measured using the debt-to-equity ratio. Although financial pressure may encourage management to present favorable corporate information, its relationship with sustainability reporting disclosure remains an empirical question. Rahmawati and Utami (2023) and Syurmita et al. (2024) reported an association between external pressure and financial statement fraud, whereas Bifadli et al. (2022) found no significant effect. These inconsistent findings justify examining the relationship in the context of sustainability reporting.

H1: Pressure has an effect on sustainability reporting disclosure.

2.5.2. Opportunity and Sustainability Reporting Disclosure

Opportunity arises when weaknesses in organizational controls or monitoring allow individuals to manipulate information. Nature of industry is used in this study as a proxy for opportunity because inventory-related estimates may involve managerial judgment. The AICPA's guidance on audit risk and materiality recognizes that accounts requiring subjective valuation can increase audit risk (AICPA, 1984, AU 312.29). Loebbecke et al. (1989), as discussed by Summers and Sweeney (1998), identified inventory and receivables among the accounts involved in fraud cases in their sample. The inventory-to-sales ratio is therefore used to represent the nature of industry in this study. Previous studies reported relationships between nature of industry and financial statement fraud (Rahmawati & Utami, 2023; Syurmita et al., 2024; Bifadli et al., 2022). However, whether the same proxy is associated with sustainability reporting disclosure requires further testing.

H2: Opportunity has an effect on sustainability reporting disclosure.

2.5.3. Rationalization and Sustainability Reporting Disclosure

Rationalization refers to the justification individuals use to make questionable conduct appear acceptable. A change in the external auditor is used as a proxy for rationalization in this study. Auditor changes may be associated with efforts to alter the monitoring environment or reduce the likelihood that previously identified irregularities will be detected. The measurement follows Sihombing and Rahadjo (2014), as cited in Rizki et al. (2021), and uses a dummy variable coded 1 when the public accounting firm changes during the observation period and 0 otherwise. Rahmawati and Utami (2023) and Syurmita et al. (2024) reported relationships between auditor changes and financial statement fraud, whereas Bifadli et al. (2022) found no significant effect. These mixed findings support testing whether rationalization, as proxied by auditor changes, is associated with sustainability reporting disclosure.

H3: Rationalization has an effect on sustainability reporting disclosure.

2.5.4. Capability and Sustainability Reporting Disclosure

Capability concerns an individual's ability to recognize and exploit weaknesses in organizational systems. Changes in directors are used as a proxy for capability because changes in leadership may coincide with shifts in organizational control and management practices. Director changes may occur for legitimate reasons, including the end of a term, resignation, dismissal, or organizational restructuring; therefore, a change alone does not establish fraudulent intent. The proxy is measured using a dummy variable coded 1 when a director change occurs and 0 otherwise, following Aviantara (2021), as cited in Syurmita et al. (2024). Previous findings are mixed: Rahmawati and Utami (2023) and Syurmita et al. (2024) reported relationships between director-related capability measures and financial statement fraud, whereas Bifadli et al. (2022) found no significant effect for director changes. This study therefore examines the relationship between capability and sustainability reporting disclosure.

H4: Capability has an effect on sustainability reporting disclosure.

2.5.5. Arrogance and Sustainability Reporting Disclosure

Arrogance reflects a sense of superiority that may lead executives to believe that organizational controls do not apply to them (Desviana et al., 2020). The frequency of the chief executive officer's photographs in annual reports is used as a proxy for arrogance. Novitasari and Chariri (2019), as cited in Bifadli et al. (2022), associated the prominence of CEO photographs with potential financial statement fraud. However, Bifadli et al. (2022) reported no

DOI: 10.65246

significant effect for the frequency of CEO photographs, while Rahmawati and Utami (2023) and Syurmita et al. (2024) reported relationships between arrogance-related measures and financial statement fraud. Because these findings are not consistent, the relationship between arrogance and sustainability reporting disclosure requires empirical examination.

H5: Arrogance has an effect on sustainability reporting disclosure.

2.5.6. Collusion and Sustainability Reporting Disclosure

Collusion involves cooperation between two or more parties to deceive others or secure improper benefits (Vousinas, 2019). In the present study, collusion is proxied by disclosed cooperation with the government. The measure compares the company's disclosures against eight indicators: GRI 201-4, 204-1, 205-1, 207-1, 207-2, 207-3, 207-4, and 415-1. These indicators cover government financial assistance, local procurement, corruption risks, tax approaches and governance, stakeholder engagement concerning tax, country-by-country reporting, and political contributions. Disclosure of government cooperation does not, by itself, establish collusion; rather, the proxy is used to operationalize the dimension specified in the research model. Rahmawati and Utami (2023) and Syurmita et al. (2024) reported relationships between collusion-related measures and financial statement fraud, whereas Bifadli et al. (2022) reported no significant effect for a related government-ownership measure. This study tests whether the selected collusion proxy is associated with sustainability reporting disclosure.

H6: Collusion has an effect on sustainability reporting disclosure.

2.5.7. The Moderating Role of Stakeholder Pressure

Stakeholder Theory emphasizes that corporate survival depends partly on the ability to respond to the interests and expectations of stakeholders. Sustainability reporting provides a means of communicating corporate social, environmental, and economic commitments to these parties (Tsuraya & Ghozali, 2025). Transparent disclosure can also support social legitimacy by demonstrating alignment between corporate activities and prevailing social expectations (Tsuraya & Ghozali, 2025). Darmawan and Idawati (2023), also provide a basis for understanding the relationship between stakeholder expectations and corporate disclosure.

Stakeholder pressure may constrain opportunities for selective or misleading disclosure by increasing external scrutiny and demands for accountability. Pratiwi and Lastiati (2023) reported that stakeholder pressure, measured through four principal indicators, significantly influenced sustainability reporting quality. Nevertheless, the reviewed evidence does not establish whether stakeholder pressure moderates each of the six Fraud Hexagon relationships. The present study therefore tests the moderating role of stakeholder pressure separately for pressure, opportunity, rationalization, capability, arrogance, and collusion.

H7: Stakeholder pressure moderates the effect of pressure on sustainability reporting disclosure.

H8: Stakeholder pressure moderates the effect of opportunity on sustainability reporting disclosure.

H9: Stakeholder pressure moderates the effect of rationalization on sustainability reporting disclosure.

H10: Stakeholder pressure moderates the effect of capability on sustainability reporting disclosure.

H11: Stakeholder pressure moderates the effect of arrogance on sustainability reporting disclosure.

H12: Stakeholder pressure moderates the effect of collusion on sustainability reporting disclosure.

3. Research Methods

3.1. Research Design

This study employed a quantitative explanatory research design using secondary data to examine the relationships between the Fraud Hexagon dimensions and sustainability reporting disclosure, with stakeholder pressure as a moderating variable. Explanatory research is intended to investigate causal relationships among variables through hypothesis testing. The independent variables comprised pressure, opportunity, rationalization, capability, arrogance, and collusion; sustainability reporting disclosure was the dependent variable; and stakeholder pressure was the moderating variable.

3.2. Research Context and Setting

The research focused on palm oil companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2025 period. The palm oil industry was selected because its business activities are closely

DOI: 10.65246

associated with environmental impacts and social conditions in plantation areas. The six-year observation period was intended to provide recent information about corporate reporting practices that could inform stakeholders' short-term and long-term decision-making.

According to data obtained from the Indonesia Stock Exchange (2026), the identified population consisted of 24 companies, as presented in Table 3.

Table 3. Population of Palm Oil Companies Listed on the IDX, 2020–2025

No.	Stock Code	Company Name
1	AALI	PT Astra Agro Lestari Tbk
2	ANDI	PT Andira Agro Tbk
3	ANJT	PT Austindo Nusantara Jaya Tbk
4	BWPT	PT Eagle High Plantations Tbk
5	CSRA	PT Cisadane Sawit Raya Tbk
6	DSNG	PT Dharma Satya Nusantara Tbk
7	FAPA	PT Fap Agri Tbk
8	GOLL	PT Golden Plantation Tbk
9	GZCO	PT Gozco Plantation Tbk
10	JAWA	PT Jaya Agra Wattie Tbk
11	LSIP	PT PP London Sumatra Indonesia Tbk
12	MAGP	PT Multi Agro Gemilang Plantation Tbk
13	MGRO	PT Mahkota Group Tbk
14	PALM	PT Provident Agro Tbk
15	PGUN	PT Pradiksi Gunatana Tbk
16	PSGO	PT Palma Serasih Tbk
17	PNGO	PT Pinaga Utama Tbk
18	SGRO	PT Sampoerna Agro Tbk
19	SIMP	PT Salim Ivomas Pratama Tbk
20	SMAR	PT Smart Tbk
21	SSMS	PT Sawit Sumbermas Sarana Tbk
22	TAPG	PT Triputra Agro Persada Tbk
23	TBLA	PT Tunas Baru Lampung Tbk
24	UNSP	PT Bakrie Sumatera Plantations Tbk

Source: Indonesia Stock Exchange (2026).

3.3. Population and Sample / Research Participants

The population comprised the 24 palm oil companies identified as listed on the IDX during 2020–2025. The study employed non-random sampling using a purposive sampling technique. Companies were selected based on the availability of financial statements, annual reports, and sustainability reports for the observation period.

The sampling criteria specified in the research source were as follows:

a. Companies operating in the palm oil sector and listed on the IDX during 2020–2025.
b. Companies that did not publish annual reports and sustainability reports on their official websites.
c. Companies that published annual reports consecutively throughout 2020–2025.
d. Companies that published sustainability reports consecutively throughout 2020–2025.

The final sample size and the number of firm-year observations were not specified in the available methodological information. These figures should be reported after applying the sampling criteria and verifying the availability of the required documents.

3.4. Data Sources and Data Collection

This study used secondary data obtained from corporate financial statements, annual reports, and sustainability reports for the 2020–2025 observation

DOI: 10.65246

period. The documents were collected from the official IDX website (www.idx.co.id) and the official websites of the sampled companies.

Data collection employed documentation and literature review techniques. Documentation involved examining, classifying, and analyzing the relevant corporate reports to obtain information for measuring the research variables. The literature review involved examining books and scholarly publications relevant to the research problem and the theoretical basis of the study.

The collected data were organized according to the operational definitions and measurement procedures established for each variable. The information was then analyzed using descriptive and inferential statistical techniques to evaluate the proposed hypotheses.

3.5. Measurement of Variables and Research Instruments

The study comprised one dependent variable, six independent variables, and one moderating variable. The dependent variable was sustainability reporting disclosure; the independent variables were pressure, opportunity, rationalization, capability, arrogance, and collusion; and stakeholder pressure served as the moderator.

3.5.1. Dependent Variable: Sustainability Reporting Disclosure (Y)

Sustainability reporting disclosure represents the extent to which a company reports information concerning its economic, social, and environmental performance in accordance with the Global Reporting Initiative (GRI) G4 framework. Following Tsuraya and Ghozali (2025), the variable was measured using the Sustainability Reporting Disclosure Index (SRDI).

$$SRDI = n/k$$

where (n) represents the number of disclosure items actually reported by the company and (k) represents the total number of applicable disclosure items in the reference framework. The index measures the proportion of applicable items disclosed by each company.

3.5.2. Independent Variables

The six independent variables were operationalized using proxies associated with the Fraud Hexagon framework.

a. **Pressure (X1).** Pressure was proxied by external pressure and measured using the Debt-to-Equity Ratio (DER), following the measurement approach attributed to Syurmita et al. (2024).

$$DER = \frac{Total\ Debt}{Total\ Equity}$$

b. **Opportunity (X2).** Opportunity was proxied by nature of industry, measured through the change in the inventory-to-sales ratio between consecutive years (Summers & Sweeney, 1998).

$$INVENT = \frac{It}{St} - \frac{It-1}{St-1}$$

where (I_t) and (S_t) denote inventory and sales in year (t), respectively, while (I_{t-1}) and (S_{t-1}) denote inventory and sales in the preceding year.

c. **Rationalization (X3).** Rationalization was proxied by a change in the public accounting firm. A dummy variable was assigned a value of 1 when the company's public accounting firm changed during the observation period and 0 otherwise.

d. **Capability (X4).** Capability was proxied by a change in directors. A dummy variable was assigned a value of 1 when a director change occurred during the observation period and 0 otherwise. This approach follows Aviantara (2021), as cited in Syurmita et al. (2024).

e. **Arrogance (X5).** Arrogance was measured by the frequency of the chief executive officer's photographs in the annual report. Bifadli et al. (2022), associated the frequency of CEO photographs with potential financial statement fraud. The variable was measured by counting the relevant photographs in each annual report.

f. **Collusion (X6).** Collusion was proxied by cooperation with the government. The measure was calculated as the number of applicable government-cooperation disclosure indicators reported by a company divided by the total number of indicators in that category.

3.5.3. Moderating Variable: Stakeholder Pressure (Z)

Stakeholder pressure was measured using four dimensions: environmental-sensitive industry, consumer-proximity industry, investor-oriented industry, and employee-oriented industry. The dimensions were operationalized using the extent of disclosure in the relevant sustainability reporting categories.

DOI: 10.65246

a. **Environmental-sensitive industry (ESI).** ESI was calculated as the number of environmental disclosure items reported divided by the total number of applicable environmental indicators. The measurement follows Sriningsih and Wahyuningrum (2022) and Darmawan and Idawati (2023).

$$ESI = \frac{Disclosure}{Indicator}$$

b. **Consumer-proximity industry (CPI).** CPI was measured as the number of disclosed items in the consumer-related category divided by the total number of applicable indicators in that category.

$$CPI = \frac{Disclosure}{Indicator}$$

c. **Investor-oriented industry (IOI).** IOI was measured as the number of disclosed items in the investor-oriented category divided by the total number of applicable indicators in that category.

$$IOI = \frac{Disclosure}{Indicator}$$

d. **Employee-oriented industry (EOI).** EOI was measured using the social disclosure category relating to employees and workers, comprising 17 indicators, following Suharyani et al. (2019).

$$EOI = \frac{Disclosure}{Indicator}$$

3.6. Data Analysis Techniques

The data were analyzed using descriptive statistics and Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. Descriptive statistics were used to summarize the characteristics of the observed variables through means, frequency distributions, minimum and maximum values, and standard deviations.

The inferential analysis consisted of measurement-model evaluation, structural-model evaluation, and hypothesis testing. Path analysis was used to assess the relationships between the independent variables and sustainability reporting disclosure and to examine the moderating effects of stakeholder pressure. Hypothesis testing employed a significance level of 5% (alpha=0.05). A hypothesis was considered statistically supported when its p-value was less than or equal to 0.05; otherwise, the hypothesis was not supported.

The original research source also specified model-fit assessment using the average path coefficient (APC), average R-squared (ARS), and average variance inflation factor (AVIF), with the stated criteria of p-values below 0.05 for APC and ARS and an AVIF below 3.3. These criteria should be retained only if they correspond to the actual analytical procedure and software output used in the study.

3.7. Validity, Reliability, and Trustworthiness

The quality of the measurement model was evaluated through construct validity and reliability testing. Validity refers to the extent to which a research instrument measures the intended construct (Cooper et al., 2006). The study evaluated convergent and discriminant validity, together with internal consistency reliability.

Convergent validity. Convergent validity was assessed through indicator outer loadings. The stated criterion was an outer loading greater than 0.70. Indicators below this threshold were considered for removal from the model, subject to theoretical justification and the consequences for construct validity.

Discriminant validity. Discriminant validity was evaluated using cross-loadings and the Fornell–Larcker criterion. Under the cross-loading criterion, an indicator should load more strongly on its intended construct than on other constructs. Under the Fornell–Larcker criterion, the square root of the average variance extracted for a construct should exceed its correlations with the other constructs (Ghozali, 2023).

Reliability. Internal consistency reliability was evaluated using composite reliability and Cronbach's alpha. Values above 0.70 were specified as the acceptance criterion for both measures.

3.8. Ethical Considerations

The study used secondary data obtained from publicly available corporate reports and official information sources. No human participants were involved in the described data collection process. The analysis should accurately represent the source documents, preserve the integrity of the data, and acknowledge the sources of information through appropriate citations.

3.9. Research Procedure

The research was conducted through the following stages:

a. Identifying the population of palm oil companies

DOI: 10.65246

listed on the IDX during 2020–2025.

b. Applying the purposive sampling criteria and verifying the availability of financial statements, annual reports, and sustainability reports.
c. Collecting and documenting the required secondary data from the IDX and company websites.
d. Coding the disclosure items and calculating the measures for sustainability reporting disclosure, the six Fraud Hexagon dimensions, and stakeholder pressure.
e. Conducting descriptive statistical analysis.
f. Evaluating the measurement model and assessing the structural relationships using SmartPLS 4.
g. Testing the direct-effect and moderation hypotheses at the 5% significance level and interpreting the findings in relation to the research objectives.

3.10. Methodological Limitations

The use of secondary corporate reports limits the analysis to information publicly disclosed by the sampled companies. Differences in reporting practices, disclosure completeness, and the availability of reports may affect comparability across companies and years. Furthermore, proxies such as changes in auditors, director changes, and the frequency of CEO photographs represent indirect measures of the Fraud Hexagon dimensions and should not be interpreted as direct evidence of fraudulent conduct. The findings should therefore be interpreted within the scope of the selected companies, observation period, operational definitions, and available disclosure data.

4. Results and Discussion

4.1. Research Results

4.1.1. Sample Description and Descriptive Statistics

a. Sample Description

This study examined palm oil plantation companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2025 period. The sector was selected because its operations have substantial relationships with environmental conditions and stakeholders, including investors, creditors, government institutions, and consumers. Sustainability reporting disclosure is therefore relevant for communicating corporate accountability and providing information to support stakeholder decision-making.

The sample was selected using purposive sampling based on the availability of financial statements, annual reports, and sustainability reports. Table 4 summarizes the sample selection process.

Table 4. Sample Selection Criteria

No.	Selection criteria	Number of companies
1	Palm oil plantation companies listed on the IDX during 2020–2025	24
2	Companies excluded because they did not publish annual reports and sustainability reports on their official websites	(6)
3	Companies excluded because they did not publish annual reports throughout 2020–2025	0
4	Companies excluded because they did not publish sustainability reports throughout 2020–2025	(3)
	Final sample	**15**
	Total firm-year observations (15 × 6 years)	**90**

Source: Processed by the researchers based on the research data.

Based on the sample selection table, 15 companies met the selection criteria, yielding 90 firm-year observations over the six-year observation period. The companies included in the final sample are presented in Table 4.

Table 5. Sample Companies in the Palm Oil Sector

No.	Stock code	Company name
1	AALI	PT Astra Agro Lestari Tbk

DOI: 10.65246

2	ANJT	PT Austindo Nusantara Jaya Tbk
3	BWPT	PT Eagle High Plantations Tbk
4	CSRA	PT Cisadane Sawit Raya Tbk
5	DSNG	PT Dharma Satya Nusantara Tbk
6	FAPA	PT Fap Agri Tbk
7	JAWA	PT Jaya Agra Wattie Tbk
8	MGRO	PT Mahkota Group Tbk
9	PSGO	PT Palma Serasih Tbk
10	PNGO	PT Pinaga Utama Tbk
11	SMAR	PT Smart Tbk
12	SSMS	PT Sawit Sumbermas Sarana Tbk
13	TAPG	PT Triputra Agro Persada Tbk
14	TBLA	PT Tunas Baru Lampung Tbk
15	UNSP	PT Bakrie Sumatera Plantations Tbk

Source: Processed by the researchers based on the research data.

b. Descriptive Statistics

The descriptive analysis examined the central tendency and observed ranges of the independent variables, sustainability reporting disclosure, and stakeholder pressure. The available results are summarized in Table 6.

Table 6. Descriptive Statistics

Variable	No.	Missing	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness
Pressure	1.000	0.000	2.217	1.360	0.120	29.317	3.636	36.030	5.483
Opportunity	2.000	0.000	0.025	0.016	0.000	0.130	0.023	4.375	1.816
Razionalitation	3.000	0.000	0.111	0.000	0.000	1.000	0.314	4.433	2.517
Capability	4.000	0.000	0.133	0.000	0.000	1.000	0.340	2.877	2.194
Arrogance	5.000	0.000	2.622	3.000	1.000	6.000	1.006	0.549	0.490
Collusion	6.000	0.000	0.971	1.000	0.500	1.375	0.234	-0.891	-0.035
ESI	7.000	0.000	0.255	0.265	0.000	0.353	0.053	4.794	-1.083
CPI	8.000	0.000	1.167	1.200	0.600	1.800	0.354	-1.097	0.014
IOI	9.000	0.000	0.500	0.538	0.231	0.769	0.143	-0.912	0.000
EOI	10.000	0.000	1.055	1.059	0.647	1.471	0.210	-1.051	0.005
Economic	11.000	0.000	1.180	1.154	0.615	1.692	0.278	-1.009	-0.009
Social	12.000	0.000	1.055	1.059	0.647	1.471	0.210	-1.051	0.005
Environmental	13.000	0.000	0.255	0.265	0.000	0.353	0.053	4.794	-1.083

Source: Processed by the researchers based on the research data.

These descriptive results provide an overview of the observed data before the measurement and structural models are evaluated.

4.1.2. Data Quality and Preliminary Analysis

a. Convergent Validity

Convergent validity was assessed using indicator outer loadings. The reported results indicated that most indicators had outer loadings above 0.70, suggesting that they adequately represented their respective constructs. The original report concluded that the measurement model demonstrated satisfactory convergent validity.

b. Discriminant Validity

Discriminant validity was assessed using the Fornell–Larcker criterion. The reported results indicated that the square root of the average variance extracted (AVE) for each construct exceeded the correlations between that construct and the other constructs. Accordingly, the study concluded that the constructs demonstrated adequate discriminant validity.

c. Construct Reliability

Construct reliability was evaluated using

DOI: 10.65246

composite reliability (CR) and Cronbach's alpha. According to the reported findings, the CR and Cronbach's alpha values for all constructs exceeded 0.70. These results indicated satisfactory internal consistency and supported the use of the constructs in the subsequent structural analysis.

The numerical values for the individual outer loadings, AVE, CR, Cronbach's alpha, and Fornell–Larcker matrix were not available in the extracted results. Therefore, the corresponding numerical tables should be reproduced from the original SmartPLS output before submission.

4.1.3. Main Analytical Results

a. Coefficient of Determination

The coefficient of determination was used to assess the explanatory power of the structural model. Table 7 presents the reported results.

Table 7. Coefficient of Determination

Endogenous construct	R^2	Adjusted R^2
Sustainability reporting disclosure (Y)	0.989	0.987

Source: Processed by the researchers based on the research data.

The model produced an R^2 value of 0.989 and an adjusted R^2 value of 0.987 for sustainability reporting disclosure.

b. Predictive Relevance

Predictive relevance was assessed using the blindfolding procedure. The reported Q^2 value for sustainability reporting disclosure was 0.836.

Table 8. Predictive Relevance

Endogenous construct	SSO	SSE	Q^2
Sustainability reporting disclosure (Y)	270.000	44.246	0.836

Source: Processed by the researchers based on the research data.

The reported Q^2 value was greater than zero, indicating predictive relevance for the sustainability reporting disclosure construct under the procedure used.

c. Effect Size

Effect size was assessed using f^2 to examine the contribution of individual predictors to sustainability reporting disclosure. Table 8 presents the reported values.

Table 8. Effect Sizes (f^2)

	Sustainability Reporting Disclosure(Y)
Arrogance (X5)	0.001
Capability (X4)	0.009
Collusion (X6)	0.000
Moderating Effect X1	0.071
Moderating Effect X2	0.052
Moderating Effect X3	0.001
Moderating Effect X4	0.016
Moderating Effect X5	0.037
Moderating Effect X6	0.002
Opportunity (X2)	0.071

DOI: 10.65246

Sustainability Reporting Disclosure (Y)	
Pressure (X1)	0.116
Razionalitation (X3)	0.000
Stakeholder Pressure (M)	4.965

Source: Processed by the researchers based on the research data.

Among the six direct Fraud Hexagon dimensions, pressure had the largest reported f^2 value (0.116). The interaction between pressure and stakeholder pressure had an f^2 value of 0.071, while the interaction between opportunity and stakeholder pressure had an f^2 value of 0.052. The stakeholder-pressure construct had a reported f^2 value of 4.965.

d. Path Coefficients

Table 9. Path Coefficients

	Sustainability Reporting Disclosure (Y)
Arrogance (X5)	0.004
Capability (X4)	-0.011
Collusion (X6)	0.006
Moderating Effect X1	-0.049
Moderating Effect X2	-0.030
Moderating Effect X3	-0.004
Moderating Effect X4	0.016
Moderating Effect X5	-0.019
Moderating Effect X6	0.005
Opportunity (X2)	0.031
Sustainability Reporting Disclosure (Y)	
Pressure (X1)	-0.059
Razionalitation (X3)	0.003
Stakeholder Pressure (M)	0.972

Source: Processed by the researchers based on the research data.

4.1.4. Hypothesis Testing Results and Key Findings

The hypothesis-testing results can be summarized as follows Table 10.

Table 10. Hypothesis-testing results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Arrogance (X5) → Sustainability Reporting Disclosure (Y)	0.004	0.002	0.011	0.358	0.721
Capability (X4) → Sustainability Reporting Disclosure (Y)	-0.011	-0.012	0.015	0.765	0.445
Collusion (X6) → Sustainability Reporting Disclosure (Y)	0.006	0.025	0.074	0.080	0.936
Moderating Effect X1 → Sustainability Reporting Disclosure (Y)	-0.049	-0.052	0.027	1.798	0.073
Moderating Effect X2 → Sustainability Reporting Disclosure (Y)	-0.030	-0.030	0.014	2.112	0.035
Moderating Effect X3 → Sustainability Reporting Disclosure (Y)	-0.004	-0.011	0.092	0.043	0.966

DOI: 10.65246

Moderating Effect X4 → Sustainability Reporting Disclosure (Y)	0.016	0.014	0.016	0.988	0.324
Moderating Effect X5 → Sustainability Reporting Disclosure (Y)	-0.019	-0.020	0.010	1.876	0.061
Moderating Effect X6 → Sustainability Reporting Disclosure (Y)	0.005	0.003	0.013	0.425	0.671
Opportunity (X2) → Sustainability Reporting Disclosure (Y)	0.031	0.027	0.011	2.792	0.005
Pressure (X1) → Sustainability Reporting Disclosure (Y)	-0.059	-0.064	0.021	2.845	0.005
Rationalization (X3) → Sustainability Reporting Disclosure (Y)	0.003	0.008	0.057	0.055	0.956
Stakeholder Pressure (M) → Sustainability Reporting Disclosure (Y)	0.972	0.949	0.076	12.770	0.000

Source: Processed by the researchers based on the research data.

4.2. Research Discussions

4.2.1. Interpretation of Key Findings

a. The Effect of Pressure on Sustainability Reporting Disclosure

The results indicate that pressure has a negative and statistically significant effect on Sustainability Reporting Disclosure (SRD), with a path coefficient of −0.059, a t-statistic of 2.845, and a p-value of 0.005. Therefore, H1 is supported. This finding suggests that higher pressure is associated with lower sustainability reporting disclosure in the observed palm oil companies. In the context of the Fraud Hexagon framework, pressure may arise from financial targets, operational efficiency demands, and competitive expectations. These pressures may encourage management to prioritize favorable corporate image and short-term legitimacy rather than provide comprehensive and balanced sustainability information.

This finding is consistent with Fraud Hexagon Theory, which identifies pressure as a factor that may motivate fraudulent behavior (Vousinas, 2019). It is also relevant to Agency Theory, which explains the potential conflicts of interest between management and owners. When management faces pressure to meet organizational expectations, sustainability reporting may become a means of maintaining legitimacy rather than communicating actual environmental and social performance transparently. The result is consistent with Rahmawati and Utami (2023) and Syurmita et al. (2024), whose studies associate pressure with financial reporting fraud. Nevertheless, the present finding specifically concerns sustainability reporting disclosure and should not be interpreted as direct evidence that the companies engaged in fraud.

b. The Effect of Opportunity on Sustainability Reporting Disclosure

The results show that opportunity has a positive and statistically significant effect on SRD, with a path coefficient of 0.031, a t-statistic of 2.792, and a p-value of 0.005. Accordingly, H2 is supported. The positive coefficient indicates that higher measured opportunity is associated with higher sustainability reporting disclosure in the sample. Although opportunity is theoretically understood as a condition that can facilitate manipulation, the positive relationship found in this study suggests that its association with disclosure is not necessarily negative.

Within the Fraud Hexagon framework, opportunity refers to circumstances that may permit manipulation or deviations because of weaknesses in internal controls, limited monitoring, or regulatory gaps (Vousinas, 2019). In sustainability reporting, such conditions may provide management with discretion over which environmental, social, and governance (ESG) information is presented. However, greater discretion may also be associated with more extensive disclosure, particularly when companies have the capacity to report additional information. Consequently, the positive coefficient should be interpreted as an empirical association rather than proof that opportunities for manipulation improve reporting quality.

This result is consistent with the findings of Rahmawati and Utami (2023) and Syurmita et al. (2024), which identify an association between opportunity and financial reporting fraud. Agency Theory also provides a relevant explanation because information asymmetry between management and

DOI: 10.65246

owners can create opportunities for management to exercise discretion over corporate. The positive direction observed in this study, however, highlights the importance of considering the specific operationalization of opportunity and the institutional context of sustainability reporting in the Indonesian palm oil sector.

c. The Effect of Rationalization on Sustainability Reporting Disclosure

The analysis indicates that rationalization does not have a statistically significant effect on SRD, with a path coefficient of 0.003, a t-statistic of 0.055, and a p-value of 0.956. Therefore, H3 is not supported. Although the coefficient is positive, its statistical insignificance indicates that the study does not provide sufficient evidence of a direct relationship between rationalization and sustainability reporting disclosure.

In Fraud Hexagon Theory, rationalization refers to the justification individuals construct to legitimize actions that may be unethical or inappropriate (Vousinas, 2019). In the context of sustainability reporting, management may justify selective disclosure by referring to business continuity, corporate reputation, or operational constraints. Nevertheless, such internal justifications do not necessarily translate into observable differences in published sustainability disclosures. Disclosure practices may also be influenced by formal reporting requirements, stakeholder expectations, and the standards adopted by companies.

The finding is consistent with Bifadli et al. (2022), but differs from Rahmawati and Utami (2023) and Syurmita et al. (2024), who reported significant relationships between rationalization and financial reporting fraud. This difference suggests that rationalization may operate differently across reporting contexts. In the present study, rationalization does not demonstrate an independent statistical relationship with sustainability reporting disclosure among the sampled palm oil companies.

d. The Effect of Capability on Sustainability Reporting Disclosure

The results reveal that capability has no statistically significant effect on SRD, with a path coefficient of −0.011, a t-statistic of 0.765, and a p-value of 0.445. Thus, H4 is not supported. The negative coefficient indicates the direction of the estimated relationship, but the statistical evidence is insufficient to conclude that capability affects sustainability reporting disclosure.

Capability refers to the technical knowledge, skills, authority, and organizational position that may enable individuals to exploit weaknesses in organizational systems (Vousinas, 2019). In sustainability reporting, managerial capability may influence the preparation and presentation of ESG information. However, the ability to prepare or manipulate reports does not necessarily determine the extent of disclosure. Companies may be constrained by formal reporting standards, available data, internal procedures, and external scrutiny.

The result is consistent with Bifadli et al. (2022), but contrasts with Rahmawati and Utami (2023) and Syurmita et al. (2024), who found significant relationships between capability and financial reporting fraud. The absence of a significant effect in this study suggests that capability, as operationalized in the research model, does not independently explain variations in sustainability reporting disclosure. It does not, however, establish that managerial capability is irrelevant to reporting practices in every organizational context.

e. The Effect of Arrogance on Sustainability Reporting Disclosure

The findings indicate that arrogance does not have a statistically significant effect on SRD. The path coefficient is 0.004, the t-statistic is 0.358, and the p-value is 0.721. Accordingly, H5 is not supported. Although the estimated coefficient is positive, the result does not provide sufficient evidence that arrogance is associated with sustainability reporting disclosure in the sampled companies.

Within Fraud Hexagon Theory, arrogance describes an attitude of superiority in which individuals may believe that organizational rules and monitoring mechanisms do not apply to them (Vousinas, 2019). Such attitudes may create conditions conducive to unethical decisions. Nevertheless, an internal managerial attitude may not be directly reflected in the content of publicly available sustainability reports. Reporting practices may instead be shaped by formal disclosure requirements, organizational procedures, and expectations from external stakeholders.

DOI: 10.65246

This finding is consistent with Bifadli et al. (2022), but differs from Rahmawati and Utami (2023) and Syurmita et al. (2024), who reported significant relationships between arrogance and financial reporting fraud. The result indicates that arrogance does not independently explain SRD in this study. However, it should not be interpreted as evidence that arrogance can never influence corporate disclosure decisions.

f. The Effect of Collusion on Sustainability Reporting Disclosure

The analysis shows that collusion has no statistically significant effect on SRD, with a path coefficient of 0.006, a t-statistic of 0.080, and a p-value of 0.936. Therefore, H6 is not supported. The positive coefficient is very small, and the statistical test does not establish a significant relationship between collusion and sustainability reporting disclosure.

Collusion refers to cooperation between two or more parties to facilitate or conceal fraudulent activities (Vousinas, 2019). In sustainability reporting, collusive arrangements may theoretically affect the reliability of disclosed information, particularly when parties involved in reporting or verification fail to perform their responsibilities independently. However, the presence of collusion-related characteristics does not necessarily produce measurable differences in the extent of disclosure. The relationship may depend on the nature of the arrangements, the effectiveness of monitoring, and the extent to which such practices affect published reports.

The result is consistent with Bifadli et al. (2022), but contrasts with Rahmawati and Utami (2023) and Syurmita et al. (2024), who found significant relationships between collusion and financial reporting fraud. This difference suggests that the relationship between collusion and reporting outcomes may depend on the type of report examined and the indicators used to measure the construct. In this study, collusion does not demonstrate a statistically significant direct effect on sustainability reporting disclosure.

g. The Moderating Effect of Stakeholder Pressure on the Relationship Between Pressure and Sustainability Reporting Disclosure

The interaction between pressure and stakeholder pressure has a path coefficient of −0.049, a t-statistic of 1.798, and a p-value of 0.073. Because the p-value exceeds the 5% significance threshold, H7 is not supported. The negative interaction coefficient indicates the estimated direction of the moderating relationship, but the result does not provide sufficient statistical evidence that stakeholder pressure moderates the relationship between pressure and SRD.

Stakeholder Theory emphasizes that companies should consider the interests and expectations of parties affected by their activities. In the context of sustainability reporting, stakeholder pressure may encourage greater transparency through demands from investors, regulators, consumers, and non-governmental organizations. Nevertheless, such pressure does not necessarily alter the relationship between internal or organizational pressure and disclosure practices. Companies experiencing substantial internal pressure may continue to prioritize financial targets, operational efficiency, or competitive objectives despite external demands for transparency.

The findings therefore suggest that stakeholder pressure does not significantly change the relationship between pressure and SRD at the 5% significance level. This result does not imply that stakeholder pressure is unimportant to sustainability reporting. Rather, its role as a moderator of the pressure–SRD relationship is not statistically established in this study. This interpretation is consistent with Stakeholder Theory, which recognizes the importance of stakeholder interests while leaving room for competing organizational priorities.

h. The Moderating Effect of Stakeholder Pressure on the Relationship Between Opportunity and Sustainability Reporting Disclosure

The results demonstrate that the interaction between opportunity and stakeholder pressure has a negative and statistically significant coefficient of −0.030, with a t-statistic of 2.112 and a p-value of 0.035. Therefore, H8 is supported. The negative interaction indicates that stakeholder pressure changes the relationship between opportunity and SRD in a negative direction. This finding highlights the importance of external stakeholder expectations

DOI: 10.65246

in shaping the relationship between organizational opportunities and sustainability reporting disclosure.

Within Fraud Hexagon Theory, opportunity arises when weaknesses in internal controls, limited oversight, or regulatory gaps create room for potential manipulation (Vousinas, 2019). Stakeholder pressure may affect how such opportunities relate to disclosure practices by increasing demands for accountability and more reliable ESG information. Investors, regulators, consumers, and non-governmental organizations may scrutinize corporate claims and encourage companies to provide more comprehensive information. These demands may reduce management's discretion to use reporting opportunities in ways that support selective or potentially misleading disclosure.

The result is consistent with Stakeholder Theory, which emphasizes the responsibility of companies to consider stakeholder interests. The significant negative interaction suggests that stakeholder pressure plays a moderating role in the opportunity–SRD relationship. However, the interaction coefficient alone does not establish the precise conditional effect at every level of stakeholder pressure. Further interpretation of the strength and direction of the relationship at different moderator levels would require an examination of simple slopes or an interaction plot.

i. The Moderating Effect of Stakeholder Pressure on the Relationship Between Rationalization and Sustainability Reporting Disclosure

The interaction between rationalization and stakeholder pressure has a path coefficient of −0.004, a t-statistic of 0.043, and a p-value of 0.966. The result is statistically insignificant; consequently, H9 is not supported. The findings do not provide sufficient evidence that stakeholder pressure moderates the relationship between rationalization and SRD.

Rationalization is an internal process through which management justifies decisions or actions that may conflict with ethical expectations. Although stakeholder pressure can increase demands for transparency, it may not directly change the reasoning management uses to justify its reporting decisions. Management may continue to rely on internal interpretations of business priorities, organizational constraints, or reputational considerations, regardless of external demands.

Stakeholder Theory proposes that companies should consider the interests of their stakeholders. However, the results indicate that stakeholder pressure does not significantly alter the relationship between rationalization and SRD in the observed sample. This finding suggests that the moderating role of stakeholder pressure is not uniform across all Fraud Hexagon dimensions. In particular, its interaction with rationalization is not statistically supported.

j. The Moderating Effect of Stakeholder Pressure on the Relationship Between Capability and Sustainability Reporting Disclosure

The results show that the interaction between capability and stakeholder pressure has a path coefficient of 0.016, a t-statistic of 0.988, and a p-value of 0.324. Because the p-value is greater than 0.05, H10 is not supported. Although the interaction coefficient is positive, there is insufficient statistical evidence that stakeholder pressure moderates the relationship between capability and SRD.

Capability concerns the technical skills, knowledge, and organizational authority that may enable management to influence reporting processes. These capabilities may affect how sustainability information is collected, processed, and presented. However, stakeholder pressure may not be sufficient to change the relationship between capability and disclosure, particularly when the relevant capabilities are embedded in organizational systems and internal reporting procedures.

Stakeholder Theory emphasizes that corporate reporting should respond to stakeholder expectations. Nevertheless, the empirical results indicate that stakeholder pressure does not significantly change the relationship between capability and SRD in this study. This does not establish that stakeholder oversight is ineffective in general; it indicates only that the proposed moderating effect is not statistically supported by the present model.

k. The Moderating Effect of Stakeholder Pressure on the Relationship Between Arrogance and Sustainability Reporting Disclosure

The interaction between arrogance and

DOI: 10.65246

stakeholder pressure produces a path coefficient of −0.019, a t-statistic of 1.876, and a p-value of 0.061. Since the p-value exceeds the 5% significance threshold, H11 is not supported. The negative coefficient indicates the estimated direction of the interaction, but the evidence is insufficient to conclude that stakeholder pressure significantly moderates the relationship between arrogance and SRD at the conventional 5% level.

Arrogance reflects a sense of superiority that may lead management to disregard organizational rules or external scrutiny. Stakeholder pressure could theoretically constrain such attitudes by increasing demands for transparency and accountability. However, the results suggest that these demands do not produce a statistically significant moderating effect in the present study. One possible interpretation is that the relationship between managerial attitudes and reporting practices is not readily altered by external pressure alone.

Stakeholder Theory maintains that companies should take stakeholder expectations into account when making decisions. Nevertheless, the insignificant interaction indicates that stakeholder pressure does not significantly modify the relationship between arrogance and SRD in the sampled companies. Although the p-value of 0.061 is relatively close to 0.05, the hypothesis should remain unsupported when the study applies a 5% significance threshold.

l. The Moderating Effect of Stakeholder Pressure on the Relationship Between Collusion and Sustainability Reporting Disclosure

The results indicate that the interaction between collusion and stakeholder pressure has a path coefficient of 0.005, a t-statistic of 0.425, and a p-value of 0.671. Therefore, H12 is not supported. The positive coefficient does not provide sufficient statistical evidence that stakeholder pressure moderates the relationship between collusion and SRD.

Collusion involves cooperation between parties that may facilitate or conceal inappropriate practices (Vousinas, 2019). In sustainability reporting, such arrangements may be difficult to detect when information is controlled by multiple parties or when oversight mechanisms are inadequate. Although stakeholder pressure may encourage companies to strengthen transparency and accountability, external demands do not necessarily reveal concealed arrangements or change the relationship between collusion and disclosure practices.

Stakeholder Theory emphasizes the importance of considering stakeholder interests and expectations. However, the results show that stakeholder pressure does not significantly moderate the relationship between collusion and SRD in this study. This finding suggests that the moderating role of stakeholder pressure varies across the dimensions of the Fraud Hexagon and is not statistically supported for collusion.

4.2.2. Comparison with Previous Studies

The findings concerning pressure and opportunity are consistent with Rahmawati and Utami (2023) and Syurmita et al. (2024), who reported significant relationships between these dimensions and financial statement fraud. However, the present study examines sustainability reporting disclosure rather than financial statement fraud directly. The findings therefore extend the discussion to a different corporate reporting outcome, while the direction of each relationship must be interpreted according to the operational measures used.

For rationalization, capability, arrogance, and collusion, the nonsignificant results are consistent with Bifadli et al. (2022). They differ from Rahmawati and Utami (2023) and Syurmita et al. (2024), who found significant relationships between related fraud dimensions and financial statement fraud. These differences may reflect the distinct nature of the reporting outcomes and the limitations of using indirect proxies to measure complex behavioral constructs.

The moderation findings further indicate that stakeholder pressure does not affect every Fraud Hexagon relationship in the same way. The significant interaction involving opportunity suggests that external scrutiny may be particularly relevant when organizational conditions create room for selective disclosure. However, the nonsignificant interactions involving the other dimensions indicate that stakeholder pressure cannot be assumed to neutralize all internal fraud-related factors. These findings provide a more differentiated understanding of the relationships between internal organizational conditions, external stakeholder demands, and

DOI: 10.65246

sustainability reporting disclosure.

4.2.3. Theoretical Contributions

This study contributes to Fraud Hexagon Theory by examining its six dimensions in the context of sustainability reporting disclosure among Indonesian palm oil companies. The results provide empirical support for the relevance of pressure and opportunity, while the other four dimensions were not statistically significant when measured using the proxies specified in the study. These findings suggest that the explanatory relevance of the Fraud Hexagon dimensions may vary across reporting contexts and operational measures.

The study also integrates Agency Theory and Stakeholder Theory to examine internal organizational conditions alongside external accountability demands. Agency Theory provides a perspective for understanding how pressure and opportunities associated with monitoring weaknesses may relate to disclosure decisions. Stakeholder Theory helps explain why external scrutiny may influence these relationships. The significant moderating effect of stakeholder pressure on the relationship between opportunity and sustainability reporting disclosure, together with the nonsignificant effects on the other five relationships, indicates that stakeholder pressure functions selectively within the proposed framework. This finding refines the theoretical expectation that stakeholder scrutiny may constrain opportunities for selective disclosure without necessarily changing the influence of every fraud-related factor.

4.2.4. Practical and Policy Implications

The findings have several implications for corporate managers, auditors, investors, and regulators in the palm oil sector. First, company management should strengthen financial governance and reporting controls to ensure that financial pressure does not undermine the completeness and transparency of sustainability disclosures. Financial targets should be balanced with accountability for environmental and social performance. Second, companies should improve internal monitoring and documentation of sustainability information. Because opportunity was significantly associated with disclosure and its relationship was moderated by stakeholder pressure, independent verification, transparent reporting procedures, and effective stakeholder engagement may help reduce the scope for selective disclosure. Third, investors and other stakeholders should evaluate sustainability reports alongside financial indicators and should not rely exclusively on the presence of disclosures as evidence of substantive sustainability performance. Auditors and regulators should pay particular attention to the consistency, traceability, and verifiability of reported information.

Finally, policymakers should strengthen sustainability reporting guidance and monitoring mechanisms to encourage substantive transparency rather than formal compliance alone. These recommendations are derived from the observed relationships and should not be interpreted as evidence that the sampled companies engaged in fraudulent reporting.

4.2.5. Integration with the Research Gap

The study addresses the identified research gap by examining the six Fraud Hexagon dimensions in relation to sustainability reporting disclosure rather than focusing exclusively on financial statement fraud. It also incorporates stakeholder pressure as a moderator to assess whether external accountability demands change the relationships between fraud-related factors and disclosure.

The findings demonstrate that only pressure and opportunity had significant direct relationships with sustainability reporting disclosure, while stakeholder pressure significantly moderated only the opportunity relationship. This evidence indicates that the Fraud Hexagon dimensions and stakeholder pressure do not operate uniformly across all proposed relationships. The study therefore contributes sector-specific evidence from Indonesian palm oil companies and provides a basis for further examination of how internal organizational conditions and external stakeholder expectations jointly relate to sustainability reporting.

4.2.6. Acknowledgement of Study Limitations

The findings should be interpreted in light of the study's scope and measurement choices. The analysis covers palm oil companies in Indonesia during 2020–2025, and the results may not apply to other industries, countries, or periods. The use of proxies for the Fraud Hexagon dimensions also limits the extent to which the findings can be interpreted as evidence of the underlying behavioral

DOI: 10.65246

constructs. For example, CEO photograph frequency does not directly measure arrogance, and government-cooperation disclosure does not establish the existence of collusion.

In addition, stakeholder pressure was represented through selected disclosure-related dimensions. The significant moderation result for opportunity should therefore be interpreted within the measurement framework used in the study. Further research using alternative indicators and additional contexts would help establish the robustness and broader applicability of these findings.

5. Conclusion

5.1. Summary of Key Findings

This study examined the relationships between the six Fraud Hexagon dimensions and sustainability reporting disclosure among palm oil companies listed on the Indonesia Stock Exchange during 2020–2025. It also investigated the moderating role of stakeholder pressure.

The results show that pressure had a negative and statistically significant relationship with sustainability reporting disclosure, whereas opportunity had a positive and statistically significant relationship. Rationalization, capability, arrogance, and collusion did not have statistically significant direct effects. Stakeholder pressure significantly moderated only the relationship between opportunity and sustainability reporting disclosure; its moderating effects on the other five relationships were not statistically significant.

These findings indicate that the relationships between fraud-related factors and sustainability reporting disclosure vary across dimensions. They also demonstrate that stakeholder pressure has a selective moderating role rather than a uniform effect across the proposed relationships.

5.2. Theoretical Contributions

The study extends the application of Fraud Hexagon Theory to sustainability reporting disclosure in the Indonesian palm oil sector. The significant relationships involving pressure and opportunity suggest that these dimensions are relevant to understanding disclosure practices in the context examined. The nonsignificant results for rationalization, capability, arrogance, and collusion indicate that their explanatory relevance was not established using the selected proxies.

By incorporating Agency Theory and Stakeholder Theory, the study also provides a framework for examining internal organizational conditions alongside external accountability demands. The finding that stakeholder pressure moderated only the opportunity relationship refines the expectation that stakeholder scrutiny may constrain opportunities for selective disclosure without necessarily moderating every fraud-related factor.

5.3. Practical and Policy Implications

The findings suggest that palm oil companies should maintain effective financial governance, strengthen internal reporting controls, and ensure that sustainability disclosures are supported by verifiable information. Stakeholder engagement and independent verification may be particularly relevant where organizational conditions create opportunities for selective reporting.

Investors, auditors, and regulators should assess the consistency and completeness of sustainability disclosures rather than treating the existence of a report as sufficient evidence of accountability. Policymakers should continue to improve reporting guidance and oversight mechanisms to support transparent and credible sustainability reporting.

These implications should be applied cautiously because the study identifies statistical relationships between operational proxies and disclosure rather than direct evidence of fraudulent behavior.

5.4. Limitations of the Study

The study is limited to palm oil companies in Indonesia during 2020–2025. Consequently, its findings may not be generalizable to other sectors, countries, or periods. The operational measures also represent indirect proxies for the Fraud Hexagon dimensions and may not fully capture the underlying behavioral characteristics. In addition, the stakeholder-pressure measures may not encompass every form of external pressure relevant to sustainability reporting. These limitations affect the interpretation and transferability of the findings and should be considered when applying the results to other organizational settings.

DOI: 10.65246

5.5. Directions for Future Research

Future research could extend the observation period and include companies from other industries or countries to determine whether the relationships identified in this study remain consistent across different institutional and regulatory settings. Researchers could also examine alternative measures of rationalization, capability, arrogance, and collusion to better capture their underlying theoretical dimensions.

Further studies could investigate additional forms of stakeholder pressure and examine how regulatory enforcement, independent assurance, corporate governance, and reporting standards influence sustainability disclosure. Comparative analyses using alternative statistical approaches may also help assess the robustness of the reported relationships and clarify the mechanisms through which stakeholder pressure affects the association between opportunity and sustainability reporting disclosure.

6. References

AICPA. (2002). Consideration of fraud in a financial statement audit. Auditing Standards Board, American Institute of Certified Public Accountants, Inc.

Aprilia. (2017). The analysis of the effect of fraud pentagon on financial statement fraud using Beneish model in companies applying the ASEAN Corporate Governance Scorecard. Jurnal Akuntansi Riset, 6(1), 96–126.

Bifadli, et al. (2022). Deteksi financial statement fraud dengan analisis fraud hexagon. Jurnal Akuntansi Bisnis, 16(2), 112–129. https://doi.org/10.30813/jab.v16i2.3585

Cooper, et al. (2006). Does homework improve academic achievement? A synthesis of research, 1987–2003. Review of Educational Research, 76(1), 1–62.

Darmawan, & Idawati. (2023). Pengaruh stakeholder pressure dan shareholding structure terhadap sustainability report quality. Jurnal Manajemen, 20(2), 22–42. https://doi.org/10.25170/jm.v20i2.4990

Desviana, et al. (2020). Analisis kecurangan pada pengelolaan dana desa dalam perspektif fraud hexagon. Studi Akuntansi dan Keuangan Indonesia, 3(1).

Ghozali, I. (2023). Partial least squares: Konsep, teknik dan aplikasi menggunakan program SmartPLS 4.0 untuk penelitian empiris. Penerbit Yoga Pratama.

Global Reporting Initiative. (2026). GRI Standards: Bahasa Indonesia translations. https://www.globalreporting.org/how-to-use-the-gri-standards/gri-standards-bahasa-indonesia-translations/

Pratiwi, & Lastiati. (2023). Pengaruh stakeholder pressure terhadap sustainability reporting quality dengan profitabilitas sebagai variabel moderasi. In Proceeding Auditing and Accounting Conference 2023.

Rahmawati, & Utami. (2023). Analisis pengaruh fraud hexagon dalam mendeteksi potensi kecurangan laporan keuangan. Jurnal Riset Akuntansi dan Bisnis, 23(2), 189–199. http://jurnal.umsu.ac.id/index.php/akuntan

Sejati, B. P. (2014). Pengaruh pengungkapan sustainability report terhadap kinerja dan nilai perusahaan [Undergraduate thesis, Universitas Diponegoro].

Syurmita, et al. (2024). Analisis pengaruh teori fraud hexagon dalam mendeteksi kecurangan pelaporan keuangan. Jurnal Al Azhar Indonesia Seri Ilmu Sosial, 5(1), 41–53. https://doi.org/10.36722/jaiss.v5i1.2710

Sriningsih, & Wahyuningrum. (2022). Pengaruh comprehensive stakeholder pressure dan good corporate governance terhadap kualitas sustainability report. Owner: Riset & Jurnal Akuntansi, 6(1). https://doi.org/10.33395/owner.v6i1.680

Tsuraya, & Ghozali. (2025). Pengaruh sustainability reporting dan green accounting terhadap kinerja keuangan. Diponegoro Journal of Accounting, 14(3), 1–11. http://ejournal-s1.undip.ac.id/index.php/accounting

Ulfah, et al. (2017). Pengaruh fraud pentagon dalam mendeteksi fraudulent financial reporting (studi empiris pada perbankan di Indonesia yang terdaftar di BEI). Forum Ilmiah Pendidikan Akuntansi, 5(1), 399–418.

Vousinas, G. L. (2019). Advancing theory of fraud: The S.C.O.R.E. model. Journal of Financial Crime, 26(1), 372–381. https://doi.org/10.1108/JFC-12-2017-0128

Indonesia Stock Exchange. (2026). Indonesia Stock Exchange. https://www.idx.co.id/