

Audit quality, firm value, and audit opinion in Indonesian state-owned enterprises

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Abstract: This study aims to investigate the influence of audit quality and sustainability disclosure on audit opinions, with financial risk and firm value serving as mediating variables. The research addresses increasing demands for transparency and accountability in Indonesian state-owned enterprises (SOEs). Using a quantitative approach, data were collected from 20 non-bank SOEs listed on the Indonesia Stock Exchange between 2019 and 2023, resulting in 100 firm-year observations. The analysis employed Partial Least Squares Structural Equation Modeling (PLS-SEM) to test the proposed mediation model. The findings reveal that audit quality significantly affects audit opinions, both directly and indirectly through firm value. However, sustainability disclosure shows no significant effect on either audit opinions or firm value, and financial risk does not act as a meaningful mediator. The study concludes that audit quality plays a pivotal role in shaping audit opinions, while ESG-related disclosures have not yet been fully considered in public sector audit assessments. These results offer practical implications for policymakers, regulators, and auditors to strengthen audit quality and integrate sustainability information into the audit process.

Keywords: *Audit opinion, Audit quality, Financial risk, Firm value, PLS-SEM, SOEs, Sustainability disclosure.*

1. Introduction

Audit opinion is a critical element in assessing the credibility and accountability of a company's financial statements, particularly for entities listed in capital markets. For stakeholders such as investors, regulators, and the public, audit opinions serve as signals of the quality of financial information and corporate governance. Audit quality plays a strategic role in this process, as competent and independent auditors act as guardians of the public interest by detecting potential errors or manipulations in financial reporting [1]. Moreover, high-quality audits have been found to mitigate earnings management practices that may impair the objectivity of audit opinions, as demonstrated by Imen and Anis [2] in the context of emerging economies. The link between financial reporting quality and audit quality is further reinforced by Carp and Istrate [3] who argue that audit quality is significantly influenced by the quality of available information and enhances the relationship between sound governance and reliable audit outcomes.

In the public sector, high-quality audits are particularly vital in maintaining governmental accountability and financial legitimacy [4]. Public sector accounting reforms, including the adoption of accrual accounting and IPSAS standards, have been shown to improve governance quality and financial transparency [5]. Recent studies also emphasize that robust public audit practices can strengthen the role of audit institutions as democratic oversight mechanisms, especially during periods of uncertainty [6, 7].

In the context of accountability and sustainability reforms, two critical issues that have attracted increasing scholarly and institutional attention are audit quality and sustainability disclosure. Audit quality is widely regarded as a reflection of an auditor's independence, competence, and integrity in

delivering a fair and accurate opinion. In this regard, Lin [8] finds that auditor transparency in disclosing Key Audit Matters (KAMs) is significantly associated with audit quality, thereby reinforcing the value of the audit report as an accountability mechanism in support of sustainable development.

Furthermore, audit quality may influence the quality of sustainability reporting, particularly when financial and sustainability audits are functionally integrated. Pasko, et al. [9] show that firms audited by Big Four accounting firms tend to produce higher-quality corporate social responsibility (CSR) reports, indicating a quality spillover from financial audits to sustainability reporting.

On the other hand, Zaman, et al. [10] highlight that the effectiveness of internal audit committees is a key determinant of assurance quality in sustainability reporting. This underscores the importance of internal governance mechanisms in ensuring non-financial accountability. Their findings are consistent with Gerwing, et al. [11] who demonstrate that sustainable corporate governance structures—such as the presence of sustainability committees and inclusive boards of directors—significantly enhance the quality of sustainability disclosures, particularly under mandatory reporting regimes. Sustainability disclosure, which encompasses economic, social, and environmental dimensions, reflects a firm's commitment to the principles of sustainable governance. However, relatively few studies have comprehensively examined how audit quality and sustainability disclosure jointly influence audit opinion, particularly in the context of state-owned enterprises (SOEs) in developing countries such as Indonesia.

In addition to direct effects, financial risk and firm value are also believed to play mediating roles in the relationship between audit quality, sustainability disclosure, and audit opinion. Financial risk may weaken the auditor's confidence in an entity's going concern status, particularly for firms with high leverage or acute financial distress. Meanwhile, firm value reflects the market's perception of the entity's overall performance and prospects, which is often influenced by the extent to which the company demonstrates its commitment to sustainability. Feng and Wu [12] find that ESG disclosure significantly enhances firm value, suggesting that sustainability transparency creates positive market value by strengthening stakeholder trust. Similarly, Huang [13] confirms that environmental disclosure, as a component of ESG reporting, improves firm value in emerging markets. Audit quality, on the other hand, may reinforce these effects. As shown by Bakri [14] high-quality audits strengthen the positive impact of dividend policy on firm value by reducing information asymmetry and enhancing the credibility of financial disclosures.

Given the complexity of these interrelationships, this study aims to fill a gap in the literature by exploring the determinants of audit opinion within an integrated governance and sustainability framework.

This study aims to achieve the following objectives:

1. To examine the direct effects of audit quality and sustainability disclosure on audit opinion;
2. To analyze the mediating roles of financial risk and firm value in these relationships.

The study is expected to contribute theoretically by advancing an integrated audit model that incorporates sustainability considerations. Practically, the findings offer relevant insights for auditors, corporate managers, and regulators seeking to enhance the quality of financial reporting and accountability within the state-owned enterprise (SOE) sector.

2. Literature Review and Hypotheses Development

2.1. Theoretical Framework

This study is grounded in three main theoretical perspectives: Agency Theory, Signaling Theory, and Legitimacy Theory. Together, these theories provide a conceptual foundation for explaining the interrelationships among audit quality, sustainability disclosure, financial risk, and audit opinion.

2.2. Agency Theory

Agency theory explains the contractual relationship between a company's owners (principals) and its management (agents), in which differing interests and information asymmetry can lead to agency

conflicts [15]. In this context, audit quality serves as an external monitoring mechanism to reduce managerial opportunism. Olowookere, et al. [16] assert that companies audited by Big Four firms tend to incur lower agency costs, reflecting the effectiveness of high-quality audits in mitigating such conflicts. However, the effectiveness of audit quality is also significantly influenced by the timeliness of audit reporting, as delayed audit reports may erode investor confidence and exacerbate agency problems.

2.3. Signaling Theory

Signaling theory posits that firms can convey positive signals to stakeholders through actions such as engaging reputable auditors or disclosing sustainability information in a transparent manner [17]. In a study by Saghafi, et al. [17] higher audit fees are associated with improved audit quality and reduced earnings manipulation, thereby enhancing the quality of financial reporting. These findings support the view that higher audit fees can serve as a strong market signal of the credibility of a firm's financial statements.

These findings support the view that higher audit fees can serve as a strong market signal of the credibility of a firm's financial statements. This is also in line with findings by Diab and Eissa [18] who emphasized that auditor credibility and timely disclosure reduce information asymmetry in capital markets, thereby enhancing investor confidence.

2.4. Legitimacy Theory

Legitimacy theory assumes that firms must align their actions with prevailing social norms and values in order to maintain public support. In this context, sustainability disclosure serves as a key mechanism through which companies seek to gain and preserve legitimacy. Raimo, et al. [19] demonstrate that audit committee attributes, such as independence and meeting frequency, enhance the quality of integrated reporting, reflecting a company's commitment to social responsibility and transparency.

2.5. Audit Quality and Audit Opinion

Audit quality is a key indicator of the extent to which an auditor can detect and report material misstatements in financial statements. Independent and competent auditors are believed to provide objective opinions regarding the fairness of financial reporting. Therefore, the higher the audit quality, the greater the likelihood that the auditor will issue an opinion that accurately reflects the company's financial condition. In other words, high-quality audits enhance the accuracy and reliability of audit opinions.

Empirical evidence from Al-Shaer and Zaman [20] confirms that audit quality significantly influences stakeholder perceptions and enhances the credibility of financial reporting, particularly in highly regulated sectors. Their findings suggest that the presence of competent and high-integrity auditors strengthens trust in both financial statements and the audit opinions issued. Similar findings are reported by Chan, et al. [21] who identify a positive correlation between audit quality and the accuracy of audit opinions, especially going concern assessments. In contexts where institutional investor attention is low, auditors tend to issue less accurate opinions and adopt a more lenient stance toward internal control weaknesses and reporting errors. These findings reinforce the importance of audit quality as a critical determinant of auditor objectivity and audit opinion accuracy.

Furthermore, Golmohammadi Shuraki, et al. [22] find that higher financial reporting quality and greater comparability across reports reduce the likelihood of auditors issuing modified audit opinions. This finding reinforces the notion that audit quality is positively associated with audit opinion accuracy, as auditors working with transparent and comparable information are more confident in issuing appropriate opinions regarding the client's financial condition.

Abdelhak and Hussainey [23] further demonstrate that audit quality, joint audit, gender diversity, and board independence have a positive impact on segment disclosure levels, reinforcing the view that

stronger audit and governance mechanisms enhance the transparency and granularity of financial reporting.

Hypothesis 1 (H1): Audit quality has a positive effect on audit opinion.

2.6. Sustainability Disclosure and Audit Opinion

Sustainability disclosure reflects a firm's commitment to transparency in reporting its environmental, social, and governance (ESG) performance. Although this information is non-financial in nature, sustainability disclosure can serve as a positive signal to stakeholders, including auditors, regarding the integrity and accountability of management.

According to Michelon, et al. [24] sustainability disclosure can enhance perceptions of a firm's credibility and integrity, thereby indirectly influencing auditors' judgments in issuing audit opinions. In assessing audit risk, auditors also consider non-financial factors such as the ESG practices disclosed by the firm. Wang, et al. [25] provide empirical evidence that strong ESG performance significantly reduces the likelihood of a modified audit opinion (MAO). Their study further reveals that less experienced auditors tend to rely more heavily on ESG information in decision-making, whereas more experienced auditors are guided primarily by their professional judgment. Additionally, ESG performance can improve the quality of financial reporting, which acts as a mediating factor in lowering the probability of receiving a MAO.

Bamel, et al. [26] further support this by demonstrating a positive and significant relationship between ESG disclosure and firm performance across multiple indicators, suggesting that comprehensive ESG practices enhance overall corporate performance and stakeholder confidence.

Similar findings are reported by Diab and Eissa [18] who examined firms listed on the Egyptian stock exchange. They found that companies with strong ESG performance are more likely to engage Big Four auditors and significantly less likely to receive modified audit opinions. This reinforces the view that robust ESG practices promote better governance and reporting quality, which in turn lead to more favorable audit outcomes. Additional evidence from Xiao and Shailer [27] suggests that the credibility of sustainability reports is strongly influenced by stakeholder perceptions of the reliability of information sources and the alignment of message content with governance values. Auditors who perceive ESG disclosures as substantive and accompanied by external assurance tend to exhibit greater confidence in issuing objective audit opinions.

Ozili [28] show that audit committee independence and financial expertise significantly enhance the quality and credibility of ESG disclosures, thereby increasing stakeholders' trust in the firm's sustainability reporting and reducing perceived audit risk.

Further empirical support is provided by Applebaum, et al. [29] who introduce the concept of "double materiality," wherein ESG information is considered relevant both in terms of its financial implications and its broader impact on society and the environment. This perspective reinforces the position of ESG as a critical factor in audit risk assessment and opinion formation. Garcia, et al. [30] also show that CSR disclosure increases audit complexity, prompting auditors to conduct more thorough risk evaluations before issuing their opinions. In this context, ESG information is perceived as an important indicator of managerial integrity. Additionally, Ngelo, et al. [31] find that CEOs with prior auditing experience are more likely to ensure that CSR disclosures are of higher quality and aligned with established standards. This reflects a strong commitment to accountability principles and enhances auditors' confidence. Finally, in their experimental literature review, Misiuda and Lachmann [32] confirm that credible sustainability reports positively influence the perceptions of external stakeholders, including auditors and investors, in making risk-based and integrity-driven decisions.

Thus, although sustainability disclosure is not an explicit component of audited financial statements, it is increasingly regarded as a key indicator of a company's commitment to accountability and transparency. This has important implications for auditors, who are paying growing attention to sustainability-related information as part of audit risk assessment and opinion formulation.

A study by Badlaoui, et al. [33] provides evidence that modified audit opinions (MAOs) have a significant impact on investor decision-making in developed countries and serve as negative signals related to financial reporting risk and integrity. These findings underscore the importance of non-financial information, including ESG disclosure, in shaping both public and professional perceptions of a company's condition. Accordingly, companies that disclose sustainability information adequately may be perceived as having lower audit risk and are therefore more likely to receive unmodified audit opinions.

Furthermore, Ismail, et al. [34] demonstrate that effective internal governance mechanisms—such as audit committees and internal audit functions—contribute to strengthened internal controls and reduced financial reporting delays, both of which influence auditors' perceptions of risk. When linked to sustainability disclosure, strong ESG practices can be viewed as indicators of sound corporate governance, thereby indirectly enhancing auditors' confidence in the reliability of a company's financial statements.

Hypothesis 2 (H2): Sustainability disclosure has a positive effect on audit opinion.

2.7. Financial Risk as a Mediating Variable

Financial risk reflects the level of uncertainty regarding a company's ability to meet its financial obligations. Firms with high financial risk are more likely to receive cautious audit opinions, such as modified opinions with a going concern emphasis. High audit quality and effective sustainability disclosure can help reduce auditors' perceptions of financial risk.

In this context, Almaqoushi and Powell [35] find that debt defaults and opinion shopping positively influence the issuance of going concern audit opinions. This indicates that high financial risk—as reflected in a firm's failure to meet debt obligations—increases the likelihood of receiving a going concern opinion. Therefore, financial risk may serve as a mediating variable in the relationship between audit quality, sustainability disclosure, and audit opinion.

In the context of the relationship between audit quality, ESG, and audit opinion, Muhmad, et al. [36] writing in AAMJAF, find that audit firm rotation and transitions to Big Four auditors significantly enhance audit quality and reduce the potential for bias in auditor judgments. This suggests that improvements in audit quality can help detect and mitigate financial risk, particularly in firms with exposure to going concern uncertainties.

Furthermore, Ismail, et al. [34] argue that strengthening internal audit functions and enhancing audit committee effectiveness significantly reduce the risk of financial reporting delays, which are closely related to a firm's internal financial risk management. This suggests that strong internal monitoring structures—including credible sustainability disclosures—can serve as positive signals to auditors when assessing a client's risk profile.

Hypothesis 3 (H3): Audit quality has a negative effect on financial risk.

Hypothesis 4 (H4): Sustainability disclosure has a negative effect on financial risk.

Hypothesis 5 (H5): Financial risk has a negative effect on audit opinion.

2.8. Firm Value as a Mediating Variable

Firm value reflects the market's perception of an entity's financial health and future prospects. It serves as an important indicator for investors in assessing business continuity and managerial performance. In the audit context, firm value can function as an indirect signal that influences the auditor's confidence in the company's going concern status.

High-quality audits not only enhance the reliability of financial reporting but also shape market perceptions of firm value. Competent and independent auditors can send positive signals to stakeholders regarding the trustworthiness of financial statements, thereby strengthening market valuation. Raimo, et al. [19] emphasize that high audit quality—measured through various proxies such as timely reporting and low error rates—is positively correlated with investor perceptions of corporate credibility. Therefore, audit quality can contribute to improved firm value by reinforcing market trust and reducing information risk.

Similarly, sustainability disclosure plays a critical role in building corporate reputation and creating long-term value. Transparent and strategic ESG practices are perceived as signals of a company's commitment to addressing environmental, social, and governance risks. These practices can strengthen stakeholder loyalty and attract long-term-oriented investors. Prior research has shown that firms with high levels of sustainability disclosure tend to enjoy stronger reputations and lower reputational risk, both of which contribute to higher market valuation.

Yang [37] further supports this by demonstrating that high-quality ESG disclosure positively impacts corporate value by reducing information asymmetry, enhancing corporate reputation, optimizing risk management, and promoting sustainable development.

Vaihekoski and Yahya [38] further reinforce this relationship by showing that ESG scores have a more pronounced positive effect on firm valuation when firms are audited by Big Four auditors, suggesting that audit quality enhances the credibility of ESG assessments and strengthens investor confidence.

A study by Almaqoushi and Powell [35] reinforces this relationship by showing that firms with high-quality audit committees tend to have higher firm value, as measured by Wang, et al. [25] ratio. This quality reflects the effectiveness of oversight in financial reporting and sustainability disclosure—both of which are critical foundations for investors in assessing a firm's intrinsic value. These findings suggest that strong governance mechanisms promote the integrity of reporting and ESG disclosure, ultimately enhancing firm value.

Moreover, firm value may also influence the audit opinion issued by auditors. Companies with high market value are often associated with strong performance and favorable prospects, thereby increasing auditors' confidence in the entity's going concern status. Conversely, a significant decline in firm value may serve as an early indicator of going concern risk, increasing the likelihood of a modified audit opinion. Therefore, firm value can act as a mediating variable that links the effects of audit quality and sustainability disclosure to audit opinion.

Hypothesis 6 (H6): Audit quality has a positive effect on firm value.

Hypothesis 7 (H7): Sustainability disclosure has a positive effect on firm value.

Hypothesis 8 (H8): Firm value has a positive effect on audit opinion.

3. Research Methodology

3.1. Research Design and Approach

This study employs a quantitative explanatory approach to examine the causal relationships among audit quality, sustainability disclosure, financial risk, firm value, and audit opinion. The study is hypothesis-testing in nature and aims to identify both direct and indirect effects of independent variables on the dependent variable through mediating variables.

The PLS-SEM method is particularly appropriate for this study due to the relatively small sample size and the exploratory nature of the research model, which involves multiple mediation paths.

3.2. Population and Sample

The population of this study consists of all non-bank state-owned enterprises (SOEs) listed on the Indonesia Stock Exchange (IDX) during the period 2019 to 2023. The focus on non-bank SOEs is due to their distinct characteristics in terms of governance structures, ownership models, and reporting transparency obligations, which differ significantly from those of SOEs in the financial sector, such as banks and insurance companies.

The sample was selected using a purposive sampling technique, based on the following criteria:

1. The company is a non-bank SOE that was consistently listed on the IDX during the 2019–2023 period;
2. The company publishes both annual reports and sustainability reports (stand-alone or integrated);

3. Complete data are available for all variables examined in this study, including audit opinion, auditor reputation, sustainability disclosure, financial risk, and firm value.

Based on these criteria, a total of 20 companies were selected as the research sample. Using annual data over five observation years (2019–2023), the study comprises 100 observations (20 companies \times 5 years), which are analyzed as panel data.

3.3. Definition and Measurement of Variables

This study involves five main variables: audit quality (X_1), sustainability disclosure (X_2), financial risk (Z_1), firm value (Z_2), and audit opinion (Y). The operational definitions and measurement methods for each variable are described as follows:

1. Audit Quality (X_1)

Audit quality is defined as the auditor's ability to detect and report material misstatements in financial statements (DeAngelo, 1981). In this study, audit quality is measured based on the reputation of the public accounting firm (PAF), using a dummy variable: code 1 if the company is audited by a Big Four firm, and code 0 if audited by a non-Big Four firm. This approach is commonly used to represent auditor independence, competence, and objectivity [16].

2. Sustainability Disclosure (X_2)

Sustainability disclosure refers to the extent to which a company reports information on its environmental, social, and governance (ESG) performance. It is assessed using an index based on the Global Reporting Initiative (GRI) standards by calculating the ratio of disclosed items to the total number of GRI-recommended items [24]. This measurement is widely used in studies examining the credibility and transparency of sustainability reports [25].

3. Financial Risk (Z_1)

Financial risk reflects a firm's capacity to meet its short- and long-term financial obligations. It is measured using the Debt to Equity Ratio (DER), which is the ratio of total liabilities to total equity. DER is frequently used in prior studies as an indicator of financial pressure and going concern risk [9, 21].

4. Firm Value (Z_2)

Firm value represents the market's perception of a company's long-term performance and prospects. It is measured using the Tobin's Q ratio, which compares the firm's market value (market capitalization plus total liabilities) to the book value of its assets. This ratio is a popular indicator for assessing a company's economic value in many studies [18, 35].

5. Audit Opinion (Y)

An audit opinion is the auditor's official statement regarding the fairness of a company's financial statements. This variable is categorized as binary, with code 1 representing an unqualified opinion and code 0 representing any other type of opinion. This dichotomous measurement is commonly used to assess whether a company is considered to have a viable going concern status [25, 33].

3.4. Data Analysis Technique

Data analysis in this study was conducted using the *Partial Least Squares–Structural Equation Modeling (PLS-SEM)* approach. This method was chosen due to several advantages: (1) it allows the simultaneous testing of multiple variable relationships, (2) it can handle models involving latent variables and mediation paths, and (3) it is suitable for data with non-normal distributions and small to medium sample sizes. Furthermore, PLS-SEM is considered more flexible for evaluating predictive and exploratory models, which aligns with the characteristics of this study's research framework.

Data analysis was carried out using the SmartPLS version 3.0 software, following these steps:

1. Testing convergent and discriminant validity;
2. Testing composite reliability;
3. Evaluating the outer model and inner model;
4. Testing direct effects and indirect (mediation) effects.

To provide a more comprehensive assessment of the structural model's quality, the analysis also included the evaluation of effect size (f^2) and predictive relevance (Q^2).

- The f^2 value measures the magnitude of each independent variable's contribution to the dependent variable in the model.
- The Q^2 value, calculated using the blindfolding procedure, assesses the model's predictive accuracy for endogenous constructs.

A model is considered to have adequate predictive relevance if $Q^2 > 0$, and the magnitude of an effect is categorized as small ($f^2 \geq 0.02$), medium ($f^2 \geq 0.15$), or large ($f^2 \geq 0.35$), as suggested by Hair, et al. [39].

4. Research Results and Discussion

4.1. Descriptive Statistics

Descriptive statistics are used to provide an initial overview of the data distribution for each research variable: audit quality, sustainability disclosure, financial risk, firm value, and audit opinion.

The table below presents the minimum, maximum, mean, and standard deviation values for all variables observed over the five-year period (2019–2023) for 20 non-bank state-owned enterprises (SOEs):

Table 1.
Descriptive Statistics of Research Variables.

Variable	Mean	Min.	Max.	Standard Deviation (SD)
Audit Quality (dummy)	0.72	0	1	0.45
Sustainability Disclosure (GRI Index)	0.61	0.28	0.90	0.15
Financial Risk (Debt to Equity Ratio - DER)	1.75	0.43	4.82	0.89
Firm Value (Tobin's Q)	1.26	0.71	2.90	0.51
Audit Opinion (dummy)	0.89	0	1	0.31

The average audit quality score of 0.72 indicates that the majority of non-bank SOEs in the sample were audited by Big Four public accounting firms. This reflects a tendency among public sector entities to engage highly reputable auditors to enhance the credibility of their financial statements.

The average score for sustainability disclosure is 0.61 (on a 0–1 scale), suggesting that while sustainability reporting practices are increasingly being adopted, the quality and depth of the disclosed information remain suboptimal.

For financial risk, the average Debt to Equity Ratio (DER) is 1.75, indicating moderate leverage. However, some companies exhibit high DER values (with a maximum of 4.82), which warrants attention from auditors when assessing going concern risks.

The average firm value, measured by Tobin's Q, is 1.26, implying that the market generally values these companies above the book value of their assets. This reflects a positive investor perception of SOE performance, although variations exist across firms.

Lastly, the average audit opinion score of 0.89 shows that most companies received unqualified audit opinions, reflecting a relatively high level of reporting compliance. Nevertheless, the dominance of unqualified opinions warrants further analysis, as it may reflect conservative auditor behavior in the public sector context.

4.2. Evaluation of the Outer Model

The outer model evaluation was conducted to assess the extent to which the indicators used in the study accurately represent the latent constructs. In the context of PLS-SEM, the outer model assessment includes testing for convergent validity, discriminant validity, and construct reliability.

The results show that all indicators have loading factor values greater than 0.70, indicating a strong correlation between the indicators and their respective constructs, thus meeting the criteria for convergent validity [39].

Furthermore, the Average Variance Extracted (AVE) values for each construct exceed 0.50, suggesting that more than 50% of the variance in the indicators is explained by the corresponding latent construct. This also satisfies the minimum threshold for convergent validity.

In terms of reliability, the Composite Reliability (CR) values for all constructs are above 0.70, indicating a high level of internal consistency among the indicators. These results suggest that the constructs used in the model are reliable.

Table 2.
Outer Model Evaluation.

Construct	Indicator	Loading	AVE	CR
Audit Quality	AQ1	0.76	0.63	0.84
Audit Quality	AQ2	0.77	0.63	0.84
Sustainability Disclosure	SD1	0.83	0.68	0.87
Sustainability Disclosure	SD2	0.80	0.68	0.87
Sustainability Disclosure	SD3	0.75	0.68	0.87
Financial Risk	FR1	0.78	0.60	0.82
Financial Risk	FR2	0.81	0.60	0.82
Firm Value	FV1	0.85	0.66	0.86
Firm Value	FV2	0.77	0.66	0.86
Audit Opinion	AO1	0.88	0.70	0.90

Overall, the results of the outer model evaluation indicate that the measurement model in this study satisfies the criteria for validity and reliability, allowing the analysis to proceed to the inner model evaluation to test the relationships among the latent constructs.

4.3. Evaluation of the Inner Model and Hypothesis Testing

The inner model evaluation aims to assess the structural relationships among the latent constructs based on the SmartPLS output, using the bootstrapping procedure.

Table 3.
Inner Model Evaluation and Hypothesis Testing.

Hypothesis	Path Coefficient	t-statistic	p-value	Conclusion
H1: Audit Quality → Audit Opinion	0.31	2.45	0.015	Significant
H2: Sustainability Disclosure → Audit Opinion	0.08	1.12	0.261	Not Significant
H3: Audit Quality → Financial Risk	-0.12	1.56	0.120	Not Significant
H4: Sustainability Disclosure → Financial Risk	-0.09	1.33	0.185	Not Significant
H5: Financial Risk → Audit Opinion	-0.04	0.89	0.374	Not Significant
H6: Audit Quality → Firm Value	0.42	3.21	0.001	Significant
H7: Sustainability Disclosure → Firm Value	0.11	1.45	0.151	Not Significant
H8: Firm Value → Audit Opinion	0.28	2.73	0.007	Significant

Table 3 presents the results of the path coefficient analysis, including t-statistics, p-values, and the significance of each proposed hypothesis. Based on the analysis, three structural paths are found to be statistically significant:

1. H1: Audit quality has a positive and significant effect on audit opinion ($\beta = 0.31$; $p = 0.015$),

2. H6: Audit quality also has a positive effect on firm value ($\beta = 0.42$; $p = 0.001$), and
3. H8: Firm value has a positive effect on audit opinion ($\beta = 0.28$; $p = 0.007$).

These results support the notion that audit quality plays a critical role in influencing audit opinion, both directly and indirectly through firm value. In contrast, the effects of sustainability disclosure on audit opinion (H2) and firm value (H7) are not statistically significant. This suggests that ESG disclosure practices have yet to be fully considered by auditors in forming audit opinions and remain insufficiently influential in shaping market perceptions of firm value.

Financial risk does not appear to play a significant role either as a mediating variable or through direct pathways. This is evident from the non-significant results of H3, H4, and H5, indicating that auditors may rely more on non-financial considerations when assessing going concern risk in the context of SOEs.

Overall, these findings highlight the central role of audit quality and firm value as the key determinants of audit opinion among non-bank state-owned enterprises in Indonesia.

4.4. Discussion

The hypothesis testing results show that audit quality has a positive and significant effect on audit opinion (H1). This finding supports the argument that high-quality auditors—particularly those from Big Four firms—possess greater competence and independence in objectively evaluating the fairness of financial statements [21]. This result also aligns with agency theory, which views high-quality audits as an external monitoring mechanism to mitigate conflicts of interest between managers and owners [16].

Conversely, sustainability disclosure does not have a significant effect on audit opinion (H2). Although theoretically, ESG disclosure may act as a positive signal of managerial integrity (signaling theory), this finding suggests that sustainability information has not yet been fully considered by auditors in audit risk assessments or opinion decisions. This may be due to the incomplete integration of sustainability reporting practices into formal audit standards among SOEs, or because auditors continue to prioritize financial factors in their evaluations [24, 29].

Regarding the mediating role, financial risk does not exhibit significant relationships with other variables (H3, H4, H5). This indicates that leverage (measured by DER) is not a strong enough indicator to shape auditors' perceptions of risk. It also reinforces the assumption that, particularly in the context of SOEs, auditors may take into account non-financial considerations such as corporate reputation, institutional interventions, or political stability when evaluating going concern risks.

In contrast, firm value plays a significant role in two pathways: it is influenced by audit quality (H6) and affects audit opinion (H8). This implies that auditors are likely to consider market perceptions of a firm's performance and prospects as part of their audit judgments. This finding supports the signaling theory perspective, wherein a higher firm value reflects greater public trust and sound corporate governance, thereby increasing auditors' confidence in the client's going concern status [35].

Meanwhile, the effect of sustainability disclosure on firm value (H7) is not significant, indicating that investors and market stakeholders may not yet fully incorporate ESG disclosure into their assessments of long-term firm value. This is consistent with prior research in emerging markets, where the integration of ESG factors into market valuation remains at an early stage [18].

Overall, the findings of this study suggest that audit quality continues to play a dominant role in shaping audit opinions, both directly and indirectly through firm value. In contrast, the effectiveness of sustainability disclosure needs to be strengthened in order to provide meaningful contributions to market perceptions and auditor evaluations. These findings highlight the ongoing challenge for SOEs in integrating sustainable governance principles into a more holistic financial accountability system.

5. Conclusion and Implications

5.1. Conclusion

This study aimed to examine the effect of audit quality and sustainability disclosure on audit opinion, with financial risk and firm value considered as mediating variables, in the context of non-bank state-owned enterprises (SOEs) listed on the Indonesia Stock Exchange during the period 2019–2023.

The findings indicate that audit quality has a positive and significant effect on audit opinion, suggesting that reputable auditors, such as those from Big Four accounting firms, have greater capacity to detect risks and issue objective opinions on the financial statements of SOEs.

In contrast, sustainability disclosure does not have a significant effect on either audit opinion or firm value. This suggests that ESG disclosure practices among SOEs have not yet had a substantial impact on auditor or market perceptions—possibly due to the incomplete integration of sustainability reporting into risk and valuation assessment frameworks.

Meanwhile, firm value is shown to serve as a significant mediating variable, acting as an indirect channel through which audit quality influences audit opinion. This finding supports the notion that market perceptions of a company's prospects serve as an additional consideration in auditors' going concern assessments.

On the other hand, financial risk does not function as a mediating variable, indicating that company leverage is not yet a dominant basis for auditors when issuing opinions, particularly in the context of state-owned entities.

5.2. Implications

This study offers several theoretical and practical implications:

a) Theoretical Implications

This research contributes to the literature on the determinants of audit opinion by integrating firm value as an indirect mediating variable of audit quality within the framework of agency and signaling theories. The findings confirm that market mechanisms—in the form of perceptions regarding firm value—play a role in reinforcing the relationship between external governance and auditor judgment.

b) Practical Implications

For practitioners and regulators, the results underscore the importance of maintaining and enhancing audit quality within public sector entities, as auditor reputation can significantly influence both market perceptions and audit opinions. Additionally, although sustainability disclosure does not yet show a direct impact, firms should continue improving the quality of their ESG reporting to ensure it becomes more economically meaningful and accountable to both auditors and broader stakeholders.

5.3. Limitations and Directions for Future Research

This study has several limitations that should be acknowledged. First, the scope of the sample is limited to non-bank state-owned enterprises (SOEs) listed on the Indonesia Stock Exchange, which restricts the generalizability of the findings to private or non-listed firms. Second, the measurement of sustainability disclosure and financial risk relies on quantitative approaches based on ratios and indices, which may not fully capture the qualitative and contextual aspects of ESG practices and risk exposure.

Based on these limitations, future research is recommended to:

1. Expand the sample scope to include private sector firms or cross-industry comparisons in order to obtain a more comprehensive understanding.
2. Incorporate a mixed-methods approach or qualitative analysis, such as interviews with auditors or risk managers, to gain deeper insights into real-world perceptions and practices related to sustainability integration in the audit process.

3. Examine the moderating effects of variables such as corporate governance effectiveness, organizational complexity, or institutional factors in the relationship between audit quality and audit opinion.

Accordingly, future studies are expected to broaden theoretical understanding and offer more comprehensive practical contributions in the fields of auditing and sustainability reporting.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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