Journal of Economics, Entrepreneurship, Management Business and Accounting, 2026, 4(6),1670-1689.
https://doi.org/10.61255/jeemba.v4i6.2391

Determinants of Audit Delay with Audit Firm Reputation as a Moderating Variable in Mining Companies Listed on the Indonesia Stock Exchange (IDX)

Agnes K. B. Mudamakin*, and Tiffany N. P. Gah

Politeknik Negeri Kupang, 85361, Indonesia

ABSTRACT

Purpose - This study examines the effects of firm size, operational complexity, and financial distress on audit delay, with audit firm reputation as a moderating variable in mining companies listed on the Indonesia Stock Exchange (IDX) during 2020–2024.
Methodology - This quantitative study uses secondary data from annual reports. Purposive sampling resulted in 11 mining companies, with 55 observations over five years. Data were analyzed using multiple linear regression and Moderated Regression Analysis (MRA) with IBM SPSS Statistics version 26.
Findings - Firm size and financial distress have no significant effects on audit delay, whereas operational complexity has a positive and significant effect. Audit firm reputation does not moderate the relationships between firm size or operational complexity and audit delay. However, it weakens the relationship between financial distress and audit delay. The coefficient of determination (R^2) is 0.160, indicating that the model explains 16% of the variation in audit delay, while the remaining 84% is attributable to factors outside the model. The findings provide insights for mining companies seeking to improve the timeliness of financial statement publication. This study contributes empirical evidence on the moderating role of audit firm reputation in the determinants of audit delay in Indonesia's mining sector.

ARTICLE INFO

Keywords:
Audit Delay, Firm Size, Operational Complexity, Financial Distress, Audit Firm Reputation.

Article Information:
Received: 10/09/2026
Revise: 20/10/2026
Accepted: 15/11/2026

ISSN:
2985-3168 (Online)
2985-3222 (Print)

*Corresponding Author at:
Politeknik Negeri Kupang, 85361, Indonesia
E-mail address: tiffanygah@gmail.com (Agnes K. B. Mudamakin)
The work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International (CC BY-SA 4.0)

1. Introduction

The implementation of mineral and coal downstreaming policies under Law No. 3 of 2020, which requires domestic processing to increase added value, has significantly increased the volume and complexity of operational activities and accounting management in mining companies. Consequently, companies listed on the Indonesia Stock Exchange (IDX) are required to present financial performance information that is transparent, accurate, and timely to minimize the risk of administrative sanctions from capital market regulators arising from increasingly complex transactions (Nurianti, 2024).

Financial statements provide important information for stakeholders. Under Financial Services Authority Regulation No. 14/POJK.04/2022 concerning periodic financial reporting obligations for issuers and public companies, business entities whose registration statements have been approved are required to prepare, submit, and publish periodic financial statements for the public. This requirement aims to strengthen public confidence, particularly among shareholders. Companies listed on the IDX are also required to have their annual financial statements audited by public accountants to ensure compliance with applicable financial accounting standards. Auditors' assessments of financial statement quality are essential for investors when making investment decisions. Therefore, audited financial statements must be published promptly to ensure their availability to all relevant stakeholders.

Auditing plays a crucial role in providing reliable information to users of financial statements. Companies listed on the IDX must comply with timely reporting requirements to facilitate transactions that rely on financial information (Darma et al., 2020). According to Heriyanti (2025), the timely availability of financial statements significantly affects investment interest in the mining sector. Article 7(1) of Financial Services Authority Regulation No. 29/POJK.04/2016 stipulates that issuers or public companies must submit annual reports to the Financial Services Authority no later than the end of the fourth month after the fiscal year ends.

Timely financial reporting is essential for maintaining the usefulness and credibility of financial information. However, reporting timeliness is influenced by the duration of the auditing process, commonly referred to as audit delay. In practice, some companies experience delays because of technical and nontechnical obstacles during the audit process. Audit delay refers to the period required by auditors to complete all examination procedures until the independent auditor's report is officially issued (Mertianingsih et al., 2026).

Audit delay remains a recurring problem among mining companies in Indonesia. Transactional complexity resulting from downstreaming policies, fluctuations in global commodity prices, and financial distress can extend the duration of the auditing process (Heriyanti, 2025). Mining companies also differ from companies in other sectors because their operations are capital-intensive and characterized by substantial operational and financial complexity (Pattinaja, 2024).

According to the Ministry of Energy and Mineral Resources (2024), mining companies have complex operational characteristics and face considerable risks, particularly in the context of Indonesia's mining downstreaming policies. These policies aim to increase the added value of natural resources through domestic processing and refining. Wicaksono and Bandiyono (2025) explain that downstreaming has transformed the operational structures of mining companies, increasing complexity in production activities, investment, and financial reporting. The policy

encourages mining companies to establish domestic refining facilities or cooperate with parties possessing the necessary processing technologies.

These developments require substantial infrastructure investment, potentially increasing firm size and operational complexity and indirectly affecting audit delay. The consequences of delayed audits include reduced corporate compliance with timely financial reporting requirements. Longer audit delays extend the period required to complete examinations, whereas reducing these delays enables the auditing process to be completed more quickly (Heriyanti, 2025).

The data presented in Figure 1.1 illustrate fluctuations in the number of mining companies experiencing audit delays between 2020 and 2024. Five companies experienced audit delays in 2021, and the same number was recorded in 2022. The number subsequently decreased to four companies in 2023 before rising sharply to nine companies in 2024. This increase of more than 100% from 2023 to 2024 highlights the continuing challenges associated with audit timeliness in the mining sector. The downstreaming policy under Law No. 3 of 2020 may intensify these challenges by encouraging companies to establish new subsidiaries, develop domestic processing facilities, and undertake substantial investments, thereby increasing firm size, operational complexity, and potential financial distress (Wicaksono & Bandiyono, 2025; Pattinaja et al., 2024).

Firm size is another factor potentially associated with audit delay. It can be reflected in total assets, sales volume, and the number of employees. Larger companies generally have broader operational activities and more substantial assets, which may increase the likelihood of reporting delays (Nurianti, 2024). Operational complexity represents another potential determinant. An expanding organizational structure, including additional business units and subsidiaries, creates more diverse and geographically dispersed activities. These conditions increase the challenges auditors face in understanding business models, evaluating internal controls, and examining financial statements, potentially extending the time required to complete an audit (Ananda et al., 2021).

Financial distress may also contribute to audit delay. This condition occurs when a company experiences liquidity problems and a declining ability to meet its debt obligations, potentially increasing the risk of bankruptcy. Financial difficulties may increase audit risk and require auditors to conduct more extensive assessments of assets and business continuity. At the same time, management may become less effective in providing financial information, thereby obstructing the collection of audit evidence and extending the audit process (Wicaksono et al., 2023).

Audit firm reputation is also relevant to understanding audit delay. Public Accounting Firms (Kantor Akuntan Publik, or KAP) can be classified into major international networks, including the Big Four, and non-Big Four firms. Reputable audit firms generally possess greater resources, broader experience, and more developed operating standards, potentially enabling them to complete audit engagements more efficiently. In contrast, firms with more limited resources may face greater challenges in completing examinations promptly (Wulandari et al., 2021).

The relationship between firm size, operational complexity, financial distress, and audit delay may therefore depend on audit firm reputation. Larger companies generate substantial volumes of assets and transactions, operationally complex companies require examinations across multiple branches or subsidiaries, and financially distressed companies present greater

engagement risks. Reputable audit firms may help address these challenges through stronger competencies, adequate resources, and more advanced audit methodologies. Previous findings by Wulandari and Wenny (2021), Handayani et al. (2022), and Nia and Riswan (2025) indicate that audit firm reputation can contribute to reducing audit delays.

Based on these considerations, this study examines the effects of firm size, operational complexity, and financial distress on audit delay, with audit firm reputation serving as a moderating variable. The study uses financial reporting records from mining companies listed on the Indonesia Stock Exchange during the 2020–2024 period to investigate whether audit firm reputation moderates the relationships between these three determinants and audit delay.

2. Literature Review & Hypothesis Development

2.1. Signaling Theory

Signaling theory, based on Spence (1973), as cited in Wijayanti and Effriyanti (2019), explains the interaction between information senders and receivers. Information providers determine how signals are communicated, while recipients interpret the information and formulate responses. These signals reflect management's strategic efforts to communicate information about a company's internal conditions and future prospects. The theory also emphasizes that companies disclose financial information to provide stakeholders with signals regarding management's assessment of future business developments (Setianingsih, 2022).

Signaling theory is closely related to audit delay because the timeliness and efficiency of financial reporting serve as indicators for investors. High-quality financial information should be disseminated promptly to support investment decisions. Investors may interpret prolonged audit procedures as an indication of unfavorable internal conditions. Delayed financial reporting can consequently be perceived as a negative signal and may affect stock price movements (Amnia & Bahri, 2020).

2.2. Compliance Theory

Compliance theory encourages business entities to publish financial reports on time so that stakeholders can obtain relevant information. According to Wijasari and Wirajaya (2021), this theory emphasizes the importance of regulatory enforcement in encouraging companies to fulfill their financial reporting obligations. This perspective is consistent with Financial Services Authority Regulation No. 29/POJK.04/2016, which requires companies listed on the Indonesia Stock Exchange to submit their annual reports within the prescribed deadline. Compliance with these requirements is expected to reduce the potential for audit delays.

2.3. Financial Statements

Financial statements provide information about a company's financial position and reflect management's performance. Hidayat (2018) describes financial statements as an important source of information about a company's financial condition and performance that supports economic decision-making. Kasmir (2019) defines financial statements as reports presenting a company's financial position at a particular point in time or over a specified period.

Financial statements comprise four principal types. The income statement presents revenues and expenses over a specific period and indicates whether the company generates a profit or loss. The balance sheet presents assets, liabilities, and equity at a particular date. The statement of changes in equity summarizes changes in shareholders' equity during a specified period.

The statement of cash flows records cash inflows and outflows from operating, investing, and financing activities.

According to Wastam (2018), financial statements are important for evaluating a company's condition and supporting decision-making by internal management and external stakeholders. Investors use financial information to assess company performance, make stock trading decisions, and evaluate future profit prospects.

The purposes of financial statements include screening, understanding, forecasting, diagnosis, and evaluation. Financial information should also be useful, understandable, relevant to decision-making, reliable, accurate, and comparable across reporting periods and companies.

2.4. Auditing

Mulyadi (2002) defines auditing as a systematic process of evaluating the conformity of financial statement assertions with established standards through the objective collection of valid evidence. The results are subsequently communicated to interested parties. Auditing is a professional assurance service provided by public accounting firms and involves an independent and competent assessment of a company's financial information in accordance with applicable accounting principles.

Arens et al. (2009) describe auditing as a process of collecting and evaluating evidence concerning information to determine and communicate the degree of conformity between that information and established criteria.

2.5. Audit Delay

Audit delay refers to the time interval between the financial statement closing date and the date of the auditor's report. It represents the period required to complete the audit examination. According to Saputra et al. (2020), the measurement applied in the source classifies companies with an interval of no more than 90 days as compliant, coded 0, whereas companies exceeding 90 days are classified as experiencing audit delay, coded 1.

The study refers to Financial Services Authority Regulation No. 14/POJK.04/2022 concerning periodic financial reporting obligations and the 90-day reporting deadline described in the original document. Audit delay is calculated as follows:

[
AD = TLA - TLK
]

Where:

AD = Audit delay

TLA = Audit report date

TLK = Financial statement date

2.6. Firm Size

Firm size reflects the scale of a company's resources and operations. According to Apriani and Rahmawati (2017), as cited in Ananda et al. (2021), firm size can be measured using total assets or an appropriate logarithmic transformation of audited financial statement data. In this study, firm size is measured using the natural logarithm of total assets (Ln Assets) (Nurianti, 2024).

The original document classifies companies into large, medium, and small firms according to their asset and revenue characteristics. Larger companies generally possess more assets and conduct more extensive business activities, potentially increasing the volume of transactions that auditors must examine and influencing audit completion time.

2.7. Operational Complexity

Operational complexity refers to the degree of complexity in a company's business activities. It can be reflected in the number of branches, product diversification, geographical coverage, subsidiaries, and separate business units. Companies with more complex operations generally generate larger transaction volumes and require more extensive accounting verification.

Complexity may increase audit duration because auditors must examine multiple organizational units, address differences in accounting systems, and verify consolidated financial statements. The original study refers to PSAK No. 65 in discussing consolidated financial statements for parent companies and their subsidiaries.

Operational complexity is measured using a binary dummy variable. Companies with subsidiaries are assigned a value of 1, while companies without subsidiaries are assigned a value of 0.

2.8. Financial Distress

Financial distress refers to a deterioration in a company's financial condition before formal bankruptcy. It indicates financial difficulties that may increase audit risk and extend the time required to complete an examination. Companies experiencing financial distress may face pressure to present their financial condition more favorably, while auditors may need additional time to evaluate financial statement reliability and business continuity (Anggraeni & Wafa, 2024).

According to Rahmat (2020), financial distress can be classified into three categories. Economic failure occurs when operating revenues cannot cover operating costs and capital expenditures. Business failure refers to the cessation of business operations because accumulated losses undermine the company's ability to continue. Legal bankruptcy occurs when bankruptcy is formally pursued through legal proceedings.

The study measures financial distress using the Modified Altman Z-Score model:

$$[Z = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4]$$

Where:

(X_1) = Working capital to total assets

(X_2) = Retained earnings to total assets

(X_3) = Earnings before interest and taxes to total assets

(X_4) = Book value of equity to book value of total debt

Based on Winarso (2019), the classification thresholds are as follows: a Z-score above 2.60 indicates a healthy company; a score between 1.10 and 2.60 indicates a grey area; and a score below 1.10 indicates an unhealthy company.

2.9. Previous Studies

Previous studies provide a comparative foundation for examining the determinants of audit delay and the moderating role of audit firm reputation.

Nia and Riswan (2025) examined auditor switching and financial distress in relation to audit delay, with audit firm reputation as a moderating variable in property and real estate companies during 2021–2023. Their findings indicated that auditor switching was positively associated with audit delay, whereas financial distress showed an opposite relationship. Audit firm reputation also played a significant moderating role in these relationships.

Artana et al. (2021) investigated firm size, operational complexity, auditor reputation, and financial distress as determinants of audit delay. Their findings indicated that operational

complexity and financial distress significantly affected audit delay, whereas firm size did not have a significant effect.

Nurianti et al. (2024) examined firm size, operational complexity, auditor reputation, and financial distress in relation to audit delay. Their findings indicated that operational complexity, auditor reputation, and financial distress significantly affected audit delay, while firm size did not demonstrate a significant effect.

These studies provide the empirical background for examining the relationships among firm size, operational complexity, financial distress, audit delay, and audit firm reputation in mining companies listed on the Indonesia Stock Exchange.

2.10. Research Hypotheses

2.10.1. Firm Size and Audit Delay

Firm size reflects a company's operational scale and can be measured using total assets or the logarithm of audited assets (Ananda et al., 2021). Larger companies may experience longer audit periods because their substantial assets and transaction volumes require more extensive examination. In contrast, smaller companies may have fewer assets and less complex transactions, potentially reducing the time required for auditing. Previous studies by Lusiana et al. (2024) and Muhammad (2023) indicate a relationship between firm size and audit delay.

From a signaling theory perspective, large companies face considerable scrutiny from investors, creditors, and the public. They therefore have incentives to publish financial statements promptly to communicate positive signals. Nevertheless, their substantial assets and transaction volumes may increase audit complexity.

H1: Firm size has a positive effect on audit delay.

2.10.2. Operational Complexity and Audit Delay

Operational complexity reflects the number of subsidiaries and the diversity of business activities within a company. Muhammad (2023) explains that auditors may require additional time to examine subsidiaries before completing the audit of the parent company. Greater complexity can also increase the number of organizational units requiring verification. Previous findings by Muhammad (2023) and Christiane (2022) indicate that operational complexity has a positive effect on audit delay.

Under signaling theory, companies with complex operations may generate substantial transactions and maintain numerous subsidiaries or branches. These characteristics require more extensive audit procedures and may delay financial statement publication.

H2: Operational complexity has a positive effect on audit delay.

2.10.3. Financial Distress and Audit Delay

Financial distress indicates deteriorating financial stability before formal bankruptcy. Such conditions may create negative signals for investors and encourage management to improve the presentation of financial information. These circumstances may require additional time for examination and increase auditors' concerns regarding the reliability of financial statements and the company's ability to continue operating. Heriyanti (2025) suggests that more severe financial difficulties can extend audit delay.

Financial distress may also require auditors to conduct more comprehensive risk assessments and evaluate the company's business continuity. These additional procedures may extend the audit process.

H3: Financial distress has a positive effect on audit delay.

2.10.4. The Moderating Role of Audit Firm Reputation

Audit firm reputation reflects the perceived quality and professional capacity of an audit firm. Reputable firms, particularly those affiliated with the Big Four, generally possess greater resources, established procedures, and extensive experience. Dewi and Putra (2021) and Handayani et al. (2022) indicate that reputable audit firms can shorten audit duration for large companies.

Large companies have substantial assets and transaction volumes, which may increase audit duration. Reputable audit firms may help mitigate this challenge through stronger professional capabilities and quality-control procedures. From a compliance theory perspective, these capabilities may support timely financial reporting.

H4: Audit firm reputation moderates the effect of firm size on audit delay.

Operationally complex companies require extensive examinations across subsidiaries and business units. Saputra and Wijaya (2022) found that auditor reputation could reduce the effect of operational complexity on reporting delays. Reputable audit firms may possess the experience, technology, and professional resources needed to examine complex business structures more efficiently.

From a compliance theory perspective, reputable audit firms may help companies meet financial reporting deadlines despite complex operational structures.

H5: Audit firm reputation moderates the effect of operational complexity on audit delay.

Financially distressed companies may require more extensive audit procedures because of increased engagement risks. Kurniawan and Sari (2023) found that audit firm reputation could reduce the effect of financial distress on audit delay. Reputable auditors may be better equipped to assess financial risks and conduct examinations efficiently because of their experience, expertise, and established audit standards.

H6: Audit firm reputation moderates the effect of financial distress on audit delay.

3. Methodology

3.1 Research Location and Object

3.1.1 Research Location

This empirical study focuses on mining companies officially listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period. The research was conducted as desk research rather than field research, using secondary data accessed through the official IDX website and other financial data sources.

3.1.2 Research Object

The research objects comprise annual financial reports and audit reports of mining companies, particularly information related to firm size, operational complexity, financial distress, audit delay, and audit firm reputation.

3.1.3 Type and Source of Data

This study uses quantitative numerical data in the form of measurable figures obtained from corporate accounting documents and audit reports. The data consist of secondary information obtained through the official Indonesia Stock Exchange website at https://www.idx.co.id. The data include annual financial reports of mining companies, independent public accountant audit reports, and periodic financial documentation published by mining companies listed on the IDX.

3.1.4 Data Collection Techniques

Data were collected using two methods, namely literature study and documentation.

3.1.5 Literature Study

The literature study was conducted by examining previous literature, including relevant articles and academic journals related to the research topic.

3.1.6 Documentation

The documentation method involved examining, classifying, and reviewing secondary materials, including verified financial reports, independent auditor reports, and other supporting information obtained from publicly available financial documents of mining companies listed on the IDX during the 2020–2024 period.

3.1.7 Population and Sample

The study population consisted of 42 mining companies officially listed on the Indonesia Stock Exchange during the 2020–2024 period. The sample represents a subset of the population selected according to specific criteria. This study employed purposive sampling, with the selection criteria presented in Table 1.

Table 1. Sample Selection Criteria

No.	Sample Selection Criteria	Number of Companies
1	Mining companies listed on the Indonesia Stock Exchange during 2020–2024	42
2	Mining companies that did not publish audited financial statements throughout 2020–2024	(8)
3	Mining companies that did not use Indonesian rupiah as their reporting currency	(23)
	Total research sample	**11**
	Research period	5 years
	Total research observations	**55**

Source: Processed by the authors (2026).

Based on the established selection criteria, 11 mining companies were selected for observation over five years, from 2020 to 2024. Accordingly, the total number of observations was 55.

3.2 Operational Definitions of Research Variables

This study examines audit delay as the dependent variable, firm size, operational complexity, and financial distress as the independent variables, and audit firm reputation as the moderating variable. The operational definitions and measurements are presented in Table 2.

Table 2. Operational Definitions and Measurements of Research Variables

Variable	Definition	Measurement	Scale	Source
Audit Delay (Y)	The period required to complete the audit, measured from the financial statement date to the auditor's report date	Auditor's report date minus financial statement date	Nominal	Kadek Pebri (2021)
Firm Size (X1)	The size of a company based on its total assets	Natural logarithm of total assets (Ln Assets)	Ratio	—
Operational Complexity (X2)	The level of operational complexity	Number of subsidiaries	Dummy	Ananda and Sari (2021)
Financial Distress (X3)	The company's financial difficulty condition	Altman Z-Score	Ratio	Praptika and Rasmini (2016)

Audit Firm Reputation (Z)	The quality of the public accounting firm auditing the company	1 = Big Four; 0 = Non-Big Four	Dummy	Tanggor Sihombing (2021)

Source: Processed by the authors (2026).

3.3 Data Analysis Methods

The data were processed using IBM SPSS Statistics version 26. The analytical procedures consisted of descriptive statistical analysis, classical assumption tests, multiple linear regression analysis, Moderated Regression Analysis (MRA), and hypothesis testing.

Descriptive Statistics

Descriptive statistical analysis was used to describe the characteristics of the observed data by examining the maximum value, minimum value, mean, and standard deviation. This analysis provided a summary of the distribution and variability of the research variables.

Classical Assumption Tests

The classical assumption tests comprised normality, multicollinearity, autocorrelation, and heteroscedasticity tests.

Normality Test

The normality test was conducted to determine whether the regression model and its residuals followed a normal distribution. This study employed the Kolmogorov–Smirnov test. The data were considered normally distributed when the significance value exceeded 0.05.

Multicollinearity Test

The multicollinearity test was used to examine correlations among the independent variables in the regression model. The assessment relied on tolerance and the Variance Inflation Factor (VIF). The model was considered free from multicollinearity when the tolerance value was greater than 0.1 and the VIF value was less than 10.

Autocorrelation Test

The autocorrelation test examined whether residuals in the current observation period were related to residuals from previous periods. This study used the Durbin–Watson test to assess autocorrelation in the regression model.

Heteroscedasticity Test

The heteroscedasticity test was conducted to identify unequal residual variances across observations. This study used a scatterplot to examine the relationship between standardized predicted values and studentized residuals. The model was considered free from heteroscedasticity when the points were randomly distributed above and below or around zero, without forming a systematic pattern or regular wave-like distribution.

Multiple Linear Regression Analysis

Multiple linear regression analysis was used to examine the effects of more than one independent variable on a dependent variable. The regression model was formulated as follows:

$$\text{Audit } \textit{Delay} = \alpha + \beta 1\text{UP} + \beta 2\text{AKO} + \beta 3\text{FD} + e$$

Keterangan:

A : Konstanta
β1 : Koefisien Regresi X1
β2 : Koefisien Regresi X2
β3 : Koefisien Regresi X3
UK : Ukuran Perusahaan
KO : Kompleksitas Operasi

FD : *Financial Distress*
E : *Standart error*

3.4 Moderated Regression Analysis (MRA)

Moderated Regression Analysis was employed to examine whether audit firm reputation strengthened or weakened the relationships between the independent variables and audit delay. The analysis was conducted by including interaction terms between each independent variable and the moderating variable.

The moderation model was formulated as follows:

Audit Delay = α+β1UK+β2KO+β3FD+β4(UK.RKAP) β5(KO.RKAP) β6 (FD.RKAP))+e

Where:

A : konstanta
β1- β6 : Koefisien Regresi
UK : Ukuran Perusahaan
KO : Kompleksitas Operasi
FD : *Finansial Distress*
RKAP : Reputasi KAP
E : *Standart error*

The moderating effect was assessed by examining the significance of each interaction term. An interaction significance value below 0.05 indicated a moderating effect, whereas a value above 0.05 indicated that the moderating effect was not statistically significant.

3.5 Hypothesis Testing

Hypothesis testing was conducted to assess the statistical significance of the relationships between the independent and dependent variables. The procedures included the coefficient of determination test and the t-test.

a. Coefficient of Determination (R^2)

The coefficient of determination was used to measure the proportion of variation in the dependent variable explained by the independent variables. Its value ranges from zero to one, indicating the explanatory capacity of the regression model.

b. t-Test

The t-test was used to examine the individual effect of each independent variable on the dependent variable. According to the decision criterion stated in the source document, an independent variable was considered to have a statistically significant individual effect when its significance value was greater than 0.05.

4. Results And Discussion

4.1 Research Data and Sample Characteristics

This study examined mining companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period. The data were processed using IBM SPSS Statistics version 26. The population consisted of 42 mining companies. Following the application of the sample selection criteria, 11 companies were selected for the study, resulting in 55 observations over five years.

Table 3. Sample Selection Process

No.	Sample Selection Criteria	Number of Companies
1	Mining companies listed on the IDX during 2020–2024	42

2	Companies that did not publish audited financial statements during 2020–2024	(8)
3	Companies that did not use Indonesian rupiah as their reporting currency	(23)
	Final sample	**11**
	Observation period	5 years
	Total observations	**55**

Source: Processed by the authors (2026).

The final sample comprised 11 mining companies observed annually over five consecutive years. The resulting dataset contained 55 observations used for descriptive statistics, classical assumption testing, multiple linear regression, and Moderated Regression Analysis (MRA).

4.2 Descriptive Statistical Analysis

Table 4. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Standard Deviation
Audit Delay	55	0.48	0.279	99.76	38.272
Firm Size	55	22.08	31.43	27.7480	1.87124
Operational Complexity	55	0.00	0.01	0.91	0.290
Financial Distress	55	-22.49	23.75	-0.1507	9.58512
Audit Firm Reputation	55	0.00	0.01	0.16	0.373

Source: Descriptive statistical results reported in the original research document.

The descriptive analysis involved 55 observations for the five research variables. Audit delay had a reported mean of 99.76 and a standard deviation of 38.272. The reported minimum and maximum values were 0.48 and 0.279, respectively. These two values are reproduced as stated in the source document and require verification because the reported minimum exceeds the reported maximum. Firm size, measured using the natural logarithm of total assets, had a minimum value of 22.08 and a maximum value of 31.43. Its mean was 27.7480, with a standard deviation of 1.87124. Operational complexity had a reported minimum of 0.00, a maximum of 0.01, a mean of 0.91, and a standard deviation of 0.290. The source document presents these figures, although the reported minimum and maximum appear inconsistent with the reported mean.

Financial distress, measured using the Altman Z-Score, ranged from -22.49 to 23.75. The mean was -0.1507, and the standard deviation was 9.58512. Audit firm reputation, classified using the Big Four and Non-Big Four categories, had a reported minimum of 0.00, a maximum of 0.01, a mean of 0.16, and a standard deviation of 0.373. The minimum and maximum values are retained as reported in the source, although they appear inconsistent with the binary coding described in the methodology.

4.3 Classical Assumption Tests

Normality Test

The normality test was conducted using the One-Sample Kolmogorov–Smirnov test. The initial assessment produced an asymptotic two-tailed significance value of 0.028. Because this value was below 0.05, the initial test did not satisfy the normality criterion.

The analysis was subsequently continued using the Monte Carlo simulation approach, with a 95% confidence level and 55 observations.

Table 5. Normality Test Results

Test	Significance Value	Reference Level	Reported Result

Asymptotic significance, two-tailed	0.028	0.05	Below the reference level
Monte Carlo significance, two-tailed	0.320	0.05	Above the reference level

Source: Normality test results reported in the original research document.

The Monte Carlo significance value was 0.320, exceeding the 0.05 threshold. Based on this result, the source document concluded that the regression residuals followed a normal distribution and that the model satisfied the normality assumption.

Multicollinearity Test

Table 6. Multiple Linear Regression and Multicollinearity Test Results

Model	Variable	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	241.795	103.704	—	2.332	0.024	—	—
1	X1	-7.336	4.377	-0.359	-1.676	0.100	0.360	2.781
1	X2	67.816	27.153	0.514	2.498	0.016	0.389	2.573
1	X3	-0.865	0.547	-0.217	-1.582	0.120	0.879	1.138

The multicollinearity test was conducted to examine correlations among the independent variables. The research methodology specified tolerance and the Variance Inflation Factor (VIF) as the evaluation criteria. A model was considered free from multicollinearity when tolerance exceeded 0.10 and VIF was below 10. The source document includes a coefficient output identified as Figure 4.3, but the numerical tolerance and VIF values are not available in the extracted textual results. Consequently, the individual tolerance and VIF values cannot be reported reliably from the available text.

Autocorrelation Test

The Durbin–Watson test was used to examine autocorrelation among regression residuals.

Table 7. Autocorrelation Test Result

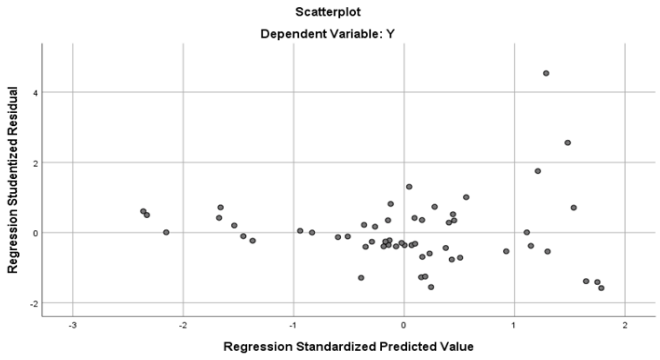
Statistical Test	Reported Value	Interpretation in the Source
Durbin–Watson	1.392	The regression model was reported to be free from autocorrelation

Source: Model Summary output reported in the original research document.

The reported Durbin–Watson statistic was 1.392. The source document interpreted this result as indicating the absence of autocorrelation and considered the regression model suitable for subsequent regression analysis. The original document does not provide the upper and lower Durbin–Watson critical bounds needed to independently verify this conclusion.

Heteroscedasticity Test

Figure 1. Uji Heterokedastisitas Scatterplot



Heteroscedasticity was examined using a scatterplot of standardized predicted values against studentized residuals. According to the description of Figure 4.5 in the source document, the points were randomly distributed around the zero line without a regular pattern, including wave-like, converging, or widening patterns.

The source document interpreted this distribution as evidence of relatively constant residual variance and concluded that the regression model did not exhibit heteroscedasticity.

4.4 Multiple Linear Regression Analysis

Multiple linear regression was used to examine the relationships of firm size, operational complexity, and financial distress with audit delay.

Table 8. Multiple Linear Regression Analysis Results

Model	Variable	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
1	(Constant)	241.795	103.704	—	2.332	0.024
1	X1	-7.336	4.377	-0.359	-1.676	0.100
1	X2	67.816	27.153	0.514	2.498	0.016
1	X3	-0.865	0.547	-0.217	-1.582	0.120

Note: Dependent Variable: Y.

The multiple regression equation presented in the source document was:

Y1 = 0,736 + 0,143 X1 + 0,250 X2 + 0,242 X3

Keterangan:

Y1 = Audit *Delay*

X1 = Ukuran Perusahaan

X2 = Kompleksitas Operasi

X3 = *Financial Distress*

The source document also describes a constant of 241.795 in the accompanying regression interpretation. This value differs from the constant of 0.736 in the displayed equation. The two values are retained here as they appear in the source and should be checked against the original SPSS coefficient output.

The partial regression results reported in Section 4.6.1 are summarized below.

Table 9. Partial Regression Results

Independent Variable	Regression Coefficient	t-Statistic	Significance	Reported Conclusion
Firm Size	-7.336	-1.676	0.100	Not statistically significant
Operational Complexity	67.816	2.498	0.016	Positive and statistically significant
Financial Distress	-0.865	-1.582	0.120	Not statistically significant

Source: Partial hypothesis test results reported in Section 4.6.1.

The firm size coefficient was -7.336, with a t-statistic of -1.676 and a significance value of 0.100. Since the significance value exceeded 0.05, the source document reported that firm size did not have a statistically significant effect on audit delay.

Operational complexity had a coefficient of 67.816, a t-statistic of 2.498, and a significance value of 0.016. The significance value was below 0.05, indicating a positive and statistically significant relationship with audit delay in the reported partial test.

Financial distress had a coefficient of -0.865, a t-statistic of -1.582, and a significance value of 0.120. Since the significance value exceeded 0.05, the source document reported that financial distress did not have a statistically significant effect on audit delay.

The source document's discussion section reports some different coefficient and significance values for the same variables. These differences are identified in the moderation and hypothesis results below rather than silently replacing the values presented in Section 4.6.1.

4.5 Moderated Regression Analysis

Moderated Regression Analysis was conducted to examine whether audit firm reputation moderated the relationships between firm size, operational complexity, financial distress, and audit delay. The analysis included interaction terms between audit firm reputation and each independent variable.

Table 10. Moderated Regression Analysis (MRA) Results

Model	Variable	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	254.023	136.604	—	1.860	0.069	—	—
1	X1	-7.807	5.821	-0.382	-1.341	0.186	0.196	5.093
1	X2	68.617	32.885	0.520	2.087	0.042	0.256	3.907
1	X3	-0.643	0.549	-0.161	-1.171	0.247	0.840	1.190
1	Firm Size × Audit Firm Reputation	16.355	11.200	4.561	1.460	0.151	0.002	613.424
1	Operational Complexity × Audit Firm Reputation	-469.120	319.430	-4.576	-1.469	0.148	0.002	610.435
1	Financial Distress × Audit Firm Reputation	-6.555	2.991	-0.445	-2.191	0.033	0.386	2.593

The moderation equation reported in the source document was:

$Y = 254{,}023 – 7{,}807X_1 + 68{,}617X_2 – 0{,}643X_3 + 16{,}355X_1M – 469{,}120X_2M – 6{,}555X_3M + e$

Keterangan:

Y = *Audit Delay*

X_1 = Ukuran Perusahaan

X_2 = Kompleksitas Operasi

X_3 = *Financial Distress*

Z = Reputasi KAP

X_1M = Interaksi Ukuran Perusahaan × Reputasi KAP

X_2M = Interaksi Kompleksitas Operasi × Reputasi KAP

X_3M = Interaksi *Financial Distress* × Reputasi KAP

Table 11. Moderated Regression Analysis Results

Interaction Term	Regression Coefficient	Significance	Moderating Effect Reported in the Source
Firm Size × Audit Firm Reputation	16.355	0.151	Not significant
Operational Complexity × Audit Firm Reputation	-469.120	0.148	Not significant
Financial Distress × Audit Firm Reputation	-6.555	0.033	Significant

Source: Moderated regression results reported in the original research document.

The interaction between firm size and audit firm reputation had a regression coefficient of 16.355 and a significance value of 0.151. Because the significance value exceeded 0.05, the source document concluded that audit firm reputation did not moderate the relationship between firm size and audit delay. The fourth hypothesis (H4) was therefore rejected.

The positive interaction coefficient indicated a positive direction in the estimated interaction, but the relationship was not statistically significant. The interaction between operational complexity and audit firm reputation had a regression coefficient of -469.120 and a significance value of 0.148. Because the significance value exceeded 0.05, audit firm reputation was reported not to moderate the relationship between operational complexity and audit delay. The fifth hypothesis (H5) was therefore rejected. The negative coefficient indicated a negative direction for the interaction term, but the interaction did not reach statistical significance.

The interaction between financial distress and audit firm reputation had a regression coefficient of -6.555 and a significance value of 0.033. Because the significance value was below 0.05, the source document concluded that audit firm reputation significantly moderated the relationship between financial distress and audit delay. The sixth hypothesis (H6) was therefore accepted. The negative interaction coefficient was interpreted in the source document as indicating that audit firm reputation weakened the relationship between financial distress and audit delay.

4.6 Hypothesis Testing

Table 12. Summary of Hypothesis Testing

Hypothesis	Relationship Tested	Reported Significance	Statistical Conclusion	Hypothesis Decision
H1	Firm size → Audit delay	0.100 in Section 4.6.1	Not significant	Rejected
H2	Operational complexity → Audit delay	0.016 in Section 4.6.1	Positive and significant	Accepted
H3	Financial distress → Audit delay	0.120 in Section 4.6.1	Not significant	Rejected
H4	Firm size × audit firm reputation → Audit delay	0.151	No significant moderation	Rejected
H5	Operational complexity × audit firm reputation → Audit delay	0.148	No significant moderation	Rejected
H6	Financial distress × audit firm reputation → Audit delay	0.033	Significant moderation	Accepted

Source: Compiled from the hypothesis-testing and MRA results reported in the original research document.

The partial tests indicated that operational complexity had a positive and statistically significant relationship with audit delay, whereas firm size and financial distress did not have statistically significant relationships with audit delay. In the moderation analysis, audit firm reputation did not significantly moderate the relationships involving firm size or operational complexity. However, the interaction between financial distress and audit firm reputation was statistically significant and had a negative coefficient.

4.7 Coefficient of Determination

The coefficient of determination was examined to assess the explanatory capacity of firm size, operational complexity, and financial distress in accounting for variation in audit delay.

Table 13. Model Summary

Statistic	Reported Value	Interpretation
Multiple correlation coefficient (R)	0.400	Moderate relationship, as described in the source
Coefficient of determination (R^2)	0.160	16.0% of variation explained
Adjusted R^2	0.111	11.1% of variation explained after adjustment
Unexplained variation based on R^2	84.0%	Attributable to factors outside the model
Unexplained variation based on adjusted R^2	88.9%	Attributable to factors outside the adjusted model

Source: Model summary results reported in the original research document.

The reported multiple correlation coefficient was 0.400, which the source document characterized as indicating a moderate relationship between the independent variables and audit delay.

The coefficient of determination was 0.160, equivalent to 16.0%. This indicates that firm size, operational complexity, and financial distress jointly explained 16.0% of the variation in audit delay in the reported regression model. The remaining 84.0% was attributed to factors outside the model.

The adjusted coefficient of determination was 0.111, equivalent to 11.1%. After adjustment for the number of predictors and observations, the model's reported explanatory capacity was 11.1%, leaving 88.9% of variation attributable to factors not included in the adjusted model.

The source document identifies profitability, solvency structure, audit opinion, audit firm size, auditor rotation, internal control effectiveness, and other external factors as examples of variables that may contribute to audit delay but were not included in the model.

4.8 Discussion

The findings indicate that firm size does not significantly affect audit delay in mining companies listed on the Indonesia Stock Exchange during 2020–2024. This result suggests that larger companies do not necessarily experience longer audit periods because adequate resources and internal control systems may support audit efficiency. This finding is consistent with Artana et al. (2021) and Nurianti et al. (2024), who also reported that firm size did not significantly affect audit delay. From the perspective of signaling theory, timely financial reporting remains important for maintaining investor confidence regardless of company size.

In contrast, operational complexity has a positive and significant effect on audit delay, with a regression coefficient of 67.816 and a significance level of 0.016. This finding indicates that companies with more complex operational structures tend to require longer audit periods because auditors must examine subsidiaries, transactions, and consolidated financial information. The result supports Artana et al. (2021) and Nurianti et al. (2024), who identified operational complexity as an important factor associated with audit delay. Therefore, mining companies should strengthen coordination among business units and improve the preparation of consolidated financial statements to facilitate more efficient audits.

Financial distress does not significantly affect audit delay, as indicated by a regression coefficient of −0.643 and a significance level of 0.247. This result suggests that financial difficulties do not automatically extend audit completion time. Auditors may continue to prioritize audit evidence, identified risks, and compliance with professional standards rather than relying solely on a company's financial condition. This finding differs from previous research reporting a significant relationship between financial distress and audit delay, as

discussed in the literature review of this study. Such differences may be associated with variations in measurement approaches, industry characteristics, and observation periods.

The moderation analysis shows that audit firm reputation does not moderate the relationship between firm size and audit delay. The interaction coefficient is 16.355, with a significance level of 0.151. Audit firm reputation also does not moderate the relationship between operational complexity and audit delay. These findings indicate that engaging a reputable public accounting firm does not necessarily eliminate the additional time required to examine complex mining operations. Although reputable firms may possess greater resources and professional expertise, the scope of transactions and the need to examine subsidiaries can still determine the duration of an audit. These results demonstrate that the moderating role of audit firm reputation should not be assumed to apply equally to all organizational characteristics.

However, audit firm reputation significantly weakens the relationship between financial distress and audit delay, as indicated by an interaction coefficient of −6.555 and a significance level of 0.033. This result is consistent with the findings discussed by Kurniawan and Sari (2023), which suggest that audit firm reputation can reduce the effect of financial distress on audit delay. Reputable audit firms may be better equipped to assess going-concern risks, identify material misstatements, and implement systematic audit procedures. From the perspectives of signaling and compliance theories, effective auditing can help financially distressed companies maintain the credibility of their financial statements and meet reporting obligations.

5. Conclusion

This study examined the effects of firm size, operational complexity, and financial distress on audit delay, with audit firm reputation as a moderating variable in mining companies listed on the Indonesia Stock Exchange during 2020–2024. The findings indicate that firm size and financial distress do not have statistically significant effects on audit delay, whereas operational complexity has a positive and statistically significant effect. These results suggest that increasingly complex business operations, larger transaction volumes, and more subsidiaries requiring detailed examination can extend the time needed to complete an audit. Meanwhile, the size of a company and its financial condition do not independently determine audit completion time in this study.

The moderation analysis further demonstrates that audit firm reputation does not moderate the relationships between firm size or operational complexity and audit delay. However, audit firm reputation significantly moderates the relationship between financial distress and audit delay, with a negative interaction coefficient indicating a weakening effect. This finding suggests that reputable public accounting firms may help mitigate the effect of financial difficulties on audit completion time through more effective audit risk management. Overall, the results highlight operational complexity as a significant determinant of audit delay and indicate that the moderating role of audit firm reputation depends on the specific relationship examined.

Reference

Akhmadi, F. (2024). Analisis dampak hilirisasi terhadap pertumbuhan ekonomi di Indonesia. Kybernology: Jurnal Ilmu Pemerintahan dan Administrasi Publik, 2(2), 824–835.

Amir Christiane, Handayani, W., Indrabudiman, S., & G. S. (2022). Effect of leverage, profitability, company size, complexity of company operations, and auditor reputation on audit delay. Jurnal Akuntansi, Keuangan, dan Manajemen, 3(3), 263–278.

Ananda, S., Andriyanto, W. A., & Sari, R. (2021). Pengaruh ukuran perusahaan, opini audit, profitabilitas, kompleksitas operasi, dan leverage terhadap audit delay. Business Management, Economic, and Accounting National Seminar, 2, 298–315.

Anggraeni, & Wafa. (2024). [Judul artikel belum tersedia]. Jurnal Ilmiah Akuntansi dan Keuangan, 13(2).

Anggraini, & Praptiningsih. (2022). Pengaruh opini audit, komite audit, dan financial distress terhadap audit delay dengan variabel moderasi. Accounting Student Research Journal, 1(1), 117–133.

Badruzaman, D. (2019). Pengaruh ukuran perusahaan terhadap audit delay (Studi empiris pada perusahaan pertambangan yang terdaftar di Bursa Efek Indonesia tahun 2015). Kajian Akuntansi, 20(2), 228–245.

Heriyanti, S. (2025). Pengaruh profitabilitas, financial distress, kompleksitas operasi perusahaan dan ukuran perusahaan terhadap audit delay (Studi empiris pada perusahaan sektor pertambangan yang terdaftar di Bursa Efek Indonesia tahun 2020–2023) [Skripsi, Universitas Jambi].

Lusiana, M. S., Pratama, A., & Lubis, Y. M. (2024). Pengaruh ukuran perusahaan, profitabilitas, solvabilitas dan reputasi Kantor Akuntan Publik terhadap audit delay pada perusahaan pertambangan yang terdaftar di Bursa Efek Indonesia tahun 2019–2021. Jurnal Lentera Bisnis, 13(3), 1627–1636.

Mertianingsih, K. Y., Ernawatiningsih, N. P. L., & Suryandari, N. N. A. (2026). Analisis faktor internal yang mempengaruhi audit delay pada perusahaan sektor energi di Bursa Efek Indonesia periode 2022–2024. Jurnal Bakti Saraswati, 15(1), 72–87.

Muhammad, E., Puspita, R. D., & Mamun, S. (2023). Pengaruh opini audit, reputasi KAP, ukuran perusahaan, solvabilitas, profitabilitas, kompleksitas operasi, dan pergantian auditor terhadap audit delay (Studi empiris pada perusahaan consumer goods yang terdaftar di Bursa Efek Indonesia tahun 2016–2020). Jurnal Ekonomi Syariah Pelita Bangsa, 8, 1–12.

Nurianti, S., & Sosiady, E. (2024). Pengaruh ukuran perusahaan, kompleksitas operasi perusahaan, reputasi auditor, dan financial distress terhadap audit delay di Bursa Efek Indonesia tahun 2016 s/d 2018. Jurnal Rumpun Ilmu Ekonomi, 2(1), 234–244.

Pattinaja, E. M., Limba, F. B., & Wali, L. (2024). Pengaruh profitabilitas dan kompleksitas operasi perusahaan terhadap audit delay: Studi pada perusahaan pertambangan terdaftar di Bursa Efek Indonesia periode 2017–2021. [Nama jurnal belum tersedia], 5(1), 20–31.

Setianingsih, K. (2022). Pengaruh manajemen laba dan tata kelola perusahaan terhadap audit delay. Owner: Riset dan Jurnal Akuntansi, 6(2), 1621–1632.

Tuti, A. (2024). Kompleksitas operasi perusahaan dan total aset terhadap audit report lag dengan reputasi Kantor Akuntan Publik sebagai pemoderasi (hlm. 271–283). [Nama jurnal atau penerbit belum tersedia].

Wahyu, W. (2018). Dasar-dasar analisa laporan keuangan. Uwais Inspirasi Indonesia.

Wicaksono, A., & Bandiyono, A. (2025). Analisis penerapan akuntansi keberlanjutan pada perusahaan pertambangan: Scoping review. Jurnal Ekonomi dan Akuntansi, 5(1), 1–14.

Wicaksono, Y., et al. (2023). The effect of auditor switching, audit opinions, and financial distress on audit delay. Sebelas Maret Business Review, 8(1), 70–77.

Wulandari, T., & Wenny, C. D. (2021). Pengaruh ukuran perusahaan, opini audit dan solvabilitas terhadap audit delay dengan reputasi KAP sebagai variabel pemoderasi. Publikasi Riset Mahasiswa Akuntansi (PRIMA), 3(1), 28–36.