

Auditor Independence, Audit Fee, Tenure, and Report Lag with Audit Quality in Indonesian Energy Firms

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Abstract

This study examines the associations between auditor independence, audit fees, audit tenure, audit report lag, and audit quality in Indonesian energy firms during 2021–2025. This explanatory quantitative study uses financial statements, annual reports, and independent auditors' reports. Purposive sampling yielded 16 firms and 80 firm-year observations. Audit quality is proxied by absolute discretionary accruals under the Kasznik model and transformed using the natural logarithm for the final test. Multiple linear regression shows that auditor independence and audit fees are negatively and significantly associated with Ln absolute discretionary accruals, whereas audit tenure and audit report lag are not significant. The model was jointly significant and explained 88.0% of the reported variation. The findings suggest that professional distance and adequate engagement resources are more informative than tenure or completion speed in this study sample. This study uses one audit quality proxy, a small purposive sample, and a transformed regression output that does not report the constant. This study adds sector-specific evidence from Indonesian energy firms facing operational risk, commodity volatility, and demand for credible reporting, while identifying directions for controls and robustness analysis.

Keywords: Audit Fee, Audit Quality, Audit Report Lag, Audit Tenure, Auditor Independence

1. INTRODUCTION

Financial statements issued by energy firms provide investors, creditors, regulators, and other stakeholders with essential information for assessing risks, prospects, and stewardship. Their usefulness depends on reporting credibility rather than numerical completeness alone. When ownership and management are separated, managers may possess more information and incentives that differ from those of the principals. External audits serve as monitoring mechanisms that can mitigate agency problems and strengthen assurance over financial statements (Jensen & Meckling, 1976; DeFond & Zhang, 2014). In the Indonesian context, the credibility function is especially important because investors must evaluate firms exposed to commodity cycles, capital-intensive projects and operational uncertainty. Therefore, audit quality has consequences not only for compliance but also for the reliability of decisions based on disclosed performance (Hapsari, 2017; El Agha & Rashid, 2023).

Audit quality cannot be fully observed from audit opinions alone. The literature treats it as a multidimensional construct related to auditor inputs, audit processes, professional judgment, and financial reporting outcomes (DeAngelo 1981; DeFond and Zhang 2014). This study uses absolute discretionary accruals as an outcome-based proxies. Lower absolute discretionary accruals indicate a narrower scope for discretionary reporting and are therefore consistent with better audit quality, although the proxy does not classify all accruals as errors or fraud. This measurement is useful for examining whether auditor-client relationship characteristics are associated with earnings credibility, provided that the coefficient direction is interpreted carefully (Kasznik, 1999; El Agha & Rashid, 2023).

The Indonesian energy sector provides a relevant setting for this study. The 2021–2025 period includes post-pandemic recovery, commodity price movements, supply chain uncertainty, and geopolitical tension. Such conditions can increase accounting estimate complexity, business risk, financing pressure, and management incentives to present stable performance. Recent evidence on Indonesian energy firms also shows that geopolitical conflicts can alter market reactions and investors' assessments of sector risk (Nurliana & Raja Ria Yusnita, 2026). In this environment, financial statement users require credible signals regarding governance and oversight quality. Signaling theory

explains how observable attributes may reduce uncertainty when the underlying quality of reporting and auditing is not fully visible to outsiders ([Connelly et al., 2025](#)).

Auditor independence, audit fees, audit tenure, and audit report lag offer four related but non-equivalent perspectives. Independence concerns the auditor's ability to assess reporting without client influence, and is represented by auditor rotation. Audit fees reflect engagement pricing, risk, complexity, and resources. Audit tenure combines the benefits of client-specific knowledge with the risk of familiarity and economic proximity. Audit report lag captures the timeliness of audit completion but can also reflect the time needed to resolve difficult evidence issues. Prior evidence is mixed because studies use different audit quality proxies, institutional settings, sectors, and observation periods ([Nurfauziah, 2022](#); [Permatasari & Astuti, 2019](#); [Martani et al., 2021](#); [Sijabat & Pangaribuan, 2023](#)).

Indonesian studies frequently examine only a subset of these variables, focus on manufacturing or financial firms, or employ different audit quality proxies. Recent studies report varying results for auditor switching, audit fees, tenure, and reporting delay, suggesting that the observed relationship may depend on sector conditions and model specifications ([Chasbiandani et al., 2024](#); [Sofiana & Murtanto, 2024](#); [Sari & Rahmi, 2021](#); [Kirana, 2021](#)). Therefore, this study tests the four variables jointly in listed energy firms over a recent five-year period. This study contributes to the literature by integrating auditor rotation as an independence indicator, professional fees as engagement resources, audit firm tenure, and audit timeliness in relation to audit quality proxied by absolute discretionary accruals. Accordingly, this study investigates both partial and joint associations rather than presenting one variable as a complete explanation of audit quality.

The research gap has two dimensions. First, energy firms differ from sectors that are examined more frequently because exploration activities, long-term contracts, substantial assets, commodity price movements, and project risk can expand accounting judgment areas. Second, the four audit characteristics are often examined separately, even though they may operate simultaneously. Their joint testing helps distinguish whether the audit quality proxy is more closely related to the mechanism protecting independence, resources available for engagement work, client-specific audit experience, or timeliness of audit completion. This design also allows us to compare our results with recent Indonesian evidence that treats quality, fees, rotation, and report lag as related but empirically distinct constructs ([Kosasih & Arfianti, 2020](#); [Safira & Napisah, 2024](#); [Salfa Falisah et al., 2025](#)).

This study did not treat every coefficient as causal. Public-report data capture only conditions disclosed during the observation period, while several audit quality determinants remain unobserved. The purposive sample also reflects disclosure availability rather than the entire population of energy firms. Nevertheless, the design provides focused empirical evidence for Indonesian energy firms and places the partial findings in a model consistent with agency and signaling theories. This study consequently intended to clarify observable associations and their interpretation while making the data and specification boundaries explicit for readers and for future replication.

The characteristics of the energy sector imply that audit quality cannot be read from one formal indicator alone. Firms may face exploration activities, long-term contracts, substantial asset bases, commodity price movements, environmental obligations, and complex accounting estimates. These conditions increase the need for objective audit work, sufficient evidence, and timely reporting. They also create a setting in which a longer audit process may indicate either reporting difficulty or additional procedures, whereas a higher fee may reflect either greater effort or greater client risk. Audit quality is therefore relevant because it affects how far financial statements can be trusted when operating risk and economic uncertainty are elevated, and because sector-specific evidence can reveal patterns that are obscured in cross-industry samples.

This study uses absolute discretionary accruals as an outcome-based proxies. This approach does not imply that every accrual is opportunistic or that the proxy observes the complete audit process. However, a large absolute value indicates a greater deviation from the normal accrual pattern

estimated by the Kasznik model. Therefore, the interpretation must follow the proxy direction, such as a negative coefficient for Ln absolute discretionary accruals indicates lower accrual discretion and is conceptually consistent with better audit quality. This clarification prevents a reversed reading of the regression coefficients and distinguishes the empirical measure from the broader construct of audit quality ([Kasznik 1999](#); [DeFond and Zhang 2014](#)).

The study's contribution lies in the joint testing of four auditor characteristics in a sector-specific and recent setting. It examines rotation as an independence indicator, professional fees as engagement resources, audit firm tenure, and reporting timeliness. The integrated approach identifies which observable characteristics remain informative after considering the others together. It also contributes a more cautious interpretation of non-significant relationships by the absence of evidence for tenure or report lag in this sample does not mean that the mechanisms are irrelevant in every sector. Instead, it highlights the importance of the sample context, measurement choices, and omitted controls when evaluating audit quality in Indonesian energy firms.

2. LITERATURE REVIEW

2.1 Agency and Signaling Theories

Agency theory views audits as a mechanism for reducing information asymmetry and conflicts of interest between principals and agents ([Jensen & Meckling, 1976](#)). Within this framework, an auditor who preserves objective judgment should be more effective in constraining opportunistic reporting and protecting the interests of dispersed shareholders. Audit fees can be understood as resources that support monitoring activities, whereas rotation and tenure describe conditions that may strengthen or weaken professional distance. Signaling theory complements the agency's argument. Financial statement users cannot observe every feature of the audit process, therefore, auditor characteristics, fee arrangements, and reporting timeliness can be interpreted as signals of a firm's oversight quality ([Connelly et al., 2025](#); [Hapsari, 2017](#)). These theories do not automatically determine the empirical sign; they explain why the relationships are plausible and why the sign must be assessed against the chosen proxy.

2.2 Audit Quality as an Outcome-Based Proxy

Audit quality in archival research should be distinguished from overall financial reporting quality and formal audit opinions. Auditors operate within evidence, standards, professional judgment, and engagement risk constraints, therefore, no single proxy is perfect. Absolute discretionary accruals are used to capture the extent of remaining accrual discretion in the reported performance. The proxy does not imply that every accrual is a misstatement, but a higher absolute value reflects a larger deviation from the estimated normal pattern of accruals. Because the proxy is inversely related to quality, every coefficient must be interpreted in terms of a decline or increase in absolute discretionary accruals before drawing a substantive conclusion on audit quality. This measurement logic follows the archival-audit literature and the Kasznik specification used in this study ([Kasznik, 1999](#); [DeFond & Zhang, 2014](#); [ElAgha & Rashid, 2023](#)).

2.3 Auditor Independence and Audit Quality

Auditor independence allows auditors to evaluate evidence and report misstatements without client pressure. In this study, independence is proxied by auditor rotation 1 for rotation and 0 otherwise. Rotation may preserve professional distance, although it does not capture every dimension of independence, such as economic dependence, partner incentives, or the strength of audit firm quality controls. Indonesian evidence treats switching or rotation as an observable mechanism for limiting excessive familiarity, while other recent studies emphasize competence and independence as complementary auditor characteristics ([Ardhani et al., 2019](#); [Fathonah et al., 2022](#); [Nurfauziah, 2022](#); [Putri & Witono, 2025](#); [Sofiana & Murtanto, 2024](#)). Since better audit quality is reflected by lower absolute discretionary accruals, H_1 is stated as follows:

H_1 : Auditor independence is negatively associated with absolute discretionary accruals or positively associated with audit quality

2.4 Audit Fee and Audit Quality

Audit fees are compensation for audit services and may reflect the engagement scope, risk, complexity, professional expertise, and resources. Adequate fees can support sufficient audit time, experienced personnel and procedures proportionate to risk ([Puspita, 2025](#)). Simultaneously, a large economic relationship can create concerns about dependence, and fees may be high precisely because a client is difficult or risky. Recent Indonesian and international evidence therefore treats the fee-quality relationship as conditional rather than mechanical, fees may support effort, but they may also signal complexity or economic bonding ([Permatasari & Astuti, 2019](#); [Kirana, 2021](#); [Mahadewi & Dwirandra, 2022](#); [Handoyo & Febriani, 2025](#); [Jérôme et al., 2025](#)).

H₂: Audit fees are negatively associated with absolute discretionary accruals or positively associated with audit quality

2.5 Audit Tenure and Audit Quality

Audit tenure refers to the number of consecutive years in which the same audit firm serves the client. Longer tenure can improve auditors' understanding of clients' systems, transactions, and risks but may also reduce professional distance through familiarity or economic closeness. Shorter tenures can protect distance while limiting client-specific knowledge ([Wahyuni & Aira, 2026](#)). Indonesian and international research reports have mixed results, including findings that tenure is not significant after other client and auditor characteristics are considered ([Kirana, 2021](#); [Sari & Rahmi, 2021](#); [Shafira & Keristin, 2022](#); [Taufiqah et al., 2022](#); [Dewita & NR, 2023](#); [Martani et al., 2021](#)). Based on the potential familiarity threat:

H₃: Audit tenure is positively associated with absolute discretionary accruals and negatively associated with audit quality

2.6 Audit Report Lag and Audit Quality

Audit report lag is the number of days between the fiscal year-end and the date of the independent auditor's report. A long lag can reduce the timeliness of information, but it does not necessarily mean that the audit quality is poor. Audit completion is also influenced by operating complexity, information readiness, transaction uncertainty, audit firm specialization, and additional procedures needed to obtain sufficient evidence ([Triwidianto & Hendrawan, 2025](#)). Recent Indonesian studies report that the determinants of report lag vary across sectors and that audit fees, audit committee characteristics, and auditor attributes can have different effects ([Kosasih & Arfianti, 2020](#); [Rifka Alkhilyatul Ma'rifat et al., 2024](#); [Safira & Napisah, 2024](#); [Salfa Falisah et al., 2025](#); [Sijabat & Pangaribuan, 2023](#)). With a focus on reporting timeliness:

H₄: Audit report lag is positively associated with absolute discretionary accruals or negatively associated with audit quality

2.7 Audit-Quality Measurement under the Kasznik Model

The Kasznik model separates total accruals into components associated with normal firm activity and residuals treated as discretionary accruals. In this thesis, total accruals are calculated as earnings less operating cash flow. The model includes beginning assets, the change in revenues adjusted for the change in receivables, gross property, plant and equipment, and the change in operating cash flows. Absolute discretionary accruals treat audit quality as a reporting outcome proxy rather than a direct observation of every audit procedure ([Ramadhani, 2023](#)). Therefore, the measure must be read with the limitations of archival data and does not replace alternative indicators such as audit outcomes, auditor specialization, partner characteristics, or inspection results. The specification is retained from the source study so that the article remains faithful to its calculations ([Kasznik, 1999](#); [DeFond & Zhang, 2014](#)).

2.8 Synthesis of the Conceptual Framework

The four hypotheses arise from distinct but related mechanisms, auditor rotation captures the professional distance that may support objectivity. The audit fee captures engagement resources and complexity. Audit tenure captures the trade-off between client-specific knowledge and economic closeness. Audit report lag captures the timeliness of audit completion but may also reflect the complexity or need for additional procedures ([Saputra, Ngaliman, & Satriawan, 2025](#)). Under agency and signaling theories, this study treats all four variables as observable characteristics available to financial statement users. Joint testing is necessary because one characteristic may not convey the same information when the other characteristics are held constant. Therefore, the framework predicts associations while leaving the direction and strength of those associations to sector-specific evidence ([Jensen & Meckling, 1976](#); [Connelly et al., 2025](#); [Martani et al., 2021](#)).

2.9 Independence as a Monitoring Mechanism

In this design, auditor rotation is an observable indicator of efforts to preserve independence. Rotation is not perfect evidence that an auditor is free from every source of pressure, but a change in auditor or audit firm may reduce the risk of familiarity formed through repeated relationships. From an agency perspective, the mechanism matters when owners require an independent party to evaluate the information prepared by management. Financial statement users may also interpret rotation as a signal that the firm values its professional distance. Recent evidence on auditor switching likewise shows that changes may be associated with report delay and other firm conditions, thus, rotation should be interpreted together with competence, client risk, and engagement resources ([DeAngelo, 1981](#); [Ardhani et al., 2019](#); [Chasbiandani et al., 2024](#); [Fathonah et al., 2022](#); [Sofiana & Murtanto, 2024](#)).

2.10 Audit Fee and Adequate Audit Effort

Audit fees require two complementary explanations. First, fees can provide audit firms with the resources to assign personnel, extend procedures, consult specialists, and complete work consistent with risk. Second, fees can reflect client scale, complexity, or risk, therefore, a large amount does not automatically imply better audit quality. Workload evidence also suggests that time pressure and staffing constraints can threaten perceived audit quality, making resource interpretation relevant to fee analysis ([Persellin et al., 2019](#)). Therefore, the fee-quality relationship is empirical rather than mechanical. This study uses the natural logarithm of the professional fees to reduce the nominal scale differences across firms. This study predicts a negative association with absolute discretionary accruals because adequate resources may limit accrual discretion while recognizing the risk of auditor economic dependence ([Mahadewi & Dwirandra, 2022](#); [Handoyo & Febriani, 2025](#)).

2.11 The Trade-off in Audit Tenure and Audit Report Lag

Audit tenure and report lag require a more nuanced interpretation. A longer tenure can improve the knowledge of a client's business, systems, and risks, but it can also reduce professional distance. A shorter audit report lag can support information timeliness, however, a longer lag does not necessarily indicate weak audit work. Auditors may require additional time when information is not ready, transactions are complex, or further evidence is necessary. Recent Indonesian findings similarly show that tenure, fees, auditor attributes, and report lag do not produce a uniform pattern across industries ([Dewita & NR, 2023](#); [Kosasih & Arfianti, 2020](#); [Safira & Napisah, 2024](#); [Sijabat & Pangaribuan, 2023](#)). Therefore, H_3 and H_4 test patterns in the data rather than assuming that one relationship direction always applies.

3. RESEARCH METHODOLOGY

This study used an explanatory quantitative design and secondary data. The sample consists of 91 energy firms listed on the Indonesia Stock Exchange (IDX). Data were collected from 2021 to 2025 financial statements, annual reports, and independent auditors' reports through the Indonesia Stock Exchange and company websites. Observations are limited to firms with a December 31 fiscal year-end to ensure comparable reporting lags. The five-year window captures a period of

post-pandemic adjustment and market uncertainty while retaining a balanced firm-year structure of the data. A balanced panel is preferred because it prevents different observation lengths from being confused with differences in audit tenure or report lag.

Purposive sampling was applied because the model requires complete consecutive observations for every variable, not merely a listing status. Firms must publish complete financial statements and annual reports, disclose professional fees and auditor information, identify the auditor report date, and use a December 31 fiscal year-end. The selection yields 16 firms and 80 firm-year observation. This criterion strengthens the measurement consistency and permits a balanced comparison across five years. However, it also creates a small sample that limits the statistical power and generalization beyond firms with comparable disclosures. Analyses were conducted using SPSS version 26. The study applies descriptive statistics, the Kolmogorov–Smirnov normality test, multicollinearity testing, the Glejser heteroscedasticity test, and the Durbin–Watson autocorrelation test.

Current-year documents are traced consistently to identify the audit firm, professional fee amount, auditor report date, and engagement period. If a disclosure is presented in a note or a different annual report section, the value is matched to the same firm-year before it is entered into the calculation sheet. The use of public data makes the study conceptually replicable, although fee disclosure completeness reduces the number of firms retained in the sample. The primary observation source is the issuer documentation at the Indonesia Stock Exchange ([Indonesia Stock Exchange, 2026](#)). This documentation-based procedure also clarifies why the sample cannot be treated as a random draw from all energy firms.

Audit quality is the dependent variable and is proxied by absolute discretionary accruals using the Kasznik model. A lower absolute value indicates better audit quality, as it represents less accrual discretion. Auditor independence is measured using an auditor-rotation dummy. Audit fees are the natural logarithm of the total professional fees. Audit tenure is the number of consecutive years of the same audit firm engagement. Audit report lag is the number of days between the fiscal year-end and the independent auditor's report date. After the initial normality test indicated a non-normal distribution, this study reports a natural-log transformation of the audit quality proxy for the final tests. The operational definitions were kept consistent with the source thesis so that the article did not introduce a new measurement after observing the results.

The conceptual model tests the association of four independent variables with the natural logarithm of the absolute discretionary accruals. A negative coefficient indicates lower absolute discretionary accruals and, therefore, better audit quality under the selected proxy. Hypotheses were tested at $p < 0.05$. The F-test assesses the joint model significance, and R^2 reports the proportion of variation in the audit quality proxy explained by the model. These statistics are interpreted as conditional associations, not causal estimates, because the specification does not include the full set of possible firm, auditor, governance, and year controls.

Data collection traces each firm's financial statements, annual reports, and independent auditor reports for every observation year. This procedure consistently checks the audit-firm identity, auditor-report date, professional-fee amount, and engagement duration. Firms that did not disclose the data needed for all variables were excluded. The resulting sample was smaller than the population, but each included observation contained the data required for every measurement. As a quality-control step, the firm-year entries are checked against the source documents before the accrual calculation and again before the regression file is analyzed. This reduces the transcription risk, although it cannot correct information that an issuer does not disclose.

In this thesis, total accruals equal earnings less operating cash flow. The non-discretionary component is estimated using the Kasznik model, and the residual is treated as discretionary accruals. This study uses the absolute residual to focus on the magnitude of discretion rather than the direction of earnings management. A natural-log transformation is applied to the audit quality proxy in the final tests because the initial distribution does not satisfy the stated normality criterion. The following

formulas summarize the calculations reported in this thesis. Because the transformation is applied after the absolute residual is obtained, the interpretation remains that smaller values represent less accrual discretion.

The following equation states the conceptual specification of the final model, a numerical constant is not reported because the thesis output for the transformed regression does not provide it. Therefore, this study presents the model form to clarify the variable relationships without adding a number that is unavailable in the source study. This reporting choice protects source fidelity and also makes the limitation transparent: readers can evaluate the coefficients and tests that are reported, but they cannot reconstruct a complete prediction equation from the available output alone.

The analysis was conducted at the firm-year level. Descriptive statistics show the distribution of observations. The Kolmogorov-Smirnov test was used to assess the final residual normality. Tolerance and VIF assess multicollinearity. The Glejser test was used to assess heteroscedasticity. The Durbin-Watson test was used to detect autocorrelation. After these checks, t-tests were used to assess partial associations, while the F-test and R^2 assessed joint significance and explanatory power. Diagnostics provide internal checks for the reported specifications, but they are not substitutes for robustness tests using alternative audit quality proxies, control variables, firm effects, or year effects. Therefore, these extensions are retained as a priority for future research rather than being presented as tests already completed.

Because the available output contains one balanced sample and one primary proxy, robustness is framed as a reporting priority rather than being claimed as a completed test. A larger replication should re-estimate the model with firm size, leverage, profitability, operational complexity, audit-firm size, governance, and year effects, compare alternative accrual models, and test whether the coefficients remain stable after separating partner rotation from audit-firm rotation. Stating this boundary prevents the high R^2 from being read as evidence that the omitted determinants are immaterial.

$$TACC_{it} = EARN_{it} - CFO_{it} \quad (1)$$

Formula 1 shows the calculation of total accruals used as the initial component in measuring audit quality through the Kasznik model. Total accruals are obtained by subtracting operating cash flow (CFO) from earnings (EARN) for each firm (i) and period (t). This calculation distinguishes accounting-based earnings components from actual cash flows to estimate discretionary accruals, which are then used as a proxy for audit quality.

$$DA_{it} = |(TACC_{it}/TA_{it-1}) - NDA_{it}| \quad (2)$$

Formula 2 shows the calculation of absolute Discretionary Accruals (DA) using the Kasznik model as a proxy for audit quality. This formula estimates the difference between total accruals scaled by prior-period total assets ($TACC/TA_{t-1}$) and Non-Discretionary Accruals (NDA). The absolute value of discretionary accruals reflects the magnitude of managerial discretion in accounting accruals, where a lower value indicates less accrual discretion and is interpreted as better audit quality.

$$\begin{aligned} \ln DA_{it} = & \alpha + \beta_1 IND_{it} + \beta_2 FEE_{it} \\ & + \beta_3 TENURE_{it} + \beta_4 ARL_{it} + \varepsilon_{it} \end{aligned} \quad (3)$$

Formula 3 shows the final regression model used to examine the relationship between auditor characteristics and audit quality. In this model, the natural logarithm of Absolute Discretionary Accruals ($\ln DA_{it}$) is used as the dependent variable, where lower values indicate better audit quality. Auditor Independence (IND), Audit Fee (FEE), Audit Tenure (TENURE), and Audit Report Lag

(ARL) are included as independent variables, while ε_{it} represents other factors affecting audit quality that are not captured in the model.

4. RESULTS AND DISCUSSION

Table 1. Sample selection process

No	Criterion	Count
1	Energy firms listed on the IDX	91
2	Firms without complete financial statements and annual reports	(45)
3	Firms without complete data for all variables	(28)
4	Firms without a 31 December fiscal year-end	(2)
Sample firms		16
Observation years		5
Firm-year observations		80

Table 1 shows the sample selection process. Of the 91 energy firms, 16 met all the criteria. Each is observed for five years, producing 80 firm-year observations in total. The balanced structure permits testing at the firm-year level and keeps the time window comparable across firms. It does not remove the limitations arising from the sample size, disclosure-based selection, or differences in firm characteristics. In particular, firms excluded because they lack professional fees or auditor information may differ systematically from included firms. Therefore, the results should be generalized to energy issuers with comparable public disclosures rather than automatically to the entire sector.

Table 2. Operational definitions of variables

Variables	Measurement	Role
Audit Quality (AQ)	LnDA in the Kasznik model. Total accruals equal earnings minus operating cash flow, a lower absolute value indicates better audit quality.	Dependent
Auditor Independence (IND)	Auditor rotation dummy: 1=a rotation of the auditor or audit firm occurs in the observation year, 0=no rotation.	Independent
Audit Fee (FEE)	Natural logarithm of total professional fees disclosed in the annual report.	Independent
Audit Tenure (TENURE)	Consecutive years in which the same audit firm serves the company are included.	Independent
Audit Report Lag (ARL)	Independent auditor report date minus fiscal year-end, measured in days.	Independent

Table 2 shows the operational definitions of the variables used in this study. Audit quality is treated as the dependent variable and measured using the natural logarithm of absolute discretionary accruals based on the Kasznik model, where lower values indicate better audit quality. Auditor independence, audit fee, audit tenure, and audit report lag are used as independent variables representing auditor characteristics and engagement conditions that may influence audit quality.

Table 3. Descriptive statistics

Variables	Minimum	Maximum	Mean	SD
Audit quality	0.0007	0.5463	0.0703	0.0888
Auditor independence	0	1	0.16	0.371

Variables	Minimum	Maximum	Mean	SD
Audit fee	18.515	22.374	20.434	0.923
Audit tenure	1	9	3.54	2.261
Audit report lag	52	178	82.95	20.340

Table 3 shows substantial variations in audit quality and audit report lags. The mean auditor-independence value of 0.16 indicates that approximately 16% of the observations recorded auditor rotation. Audit fees are reported in natural-log form. The mean audit tenure is 3.54 years, indicating that audit-firm relationships commonly extend across several periods, although some observations have tenures of up to nine years. These descriptive values provide context for the hypotheses but do not determine their statistical significance. The regression results must be read after considering the four variables jointly.

Table 4. Classical-assumption tests

Test	Result	Conclusion
Kolmogorov–Smirnov normality	Asymp. Sig. Ln_AQ=0.054	Residuals meet the normality criterion
Multicollinearity	VIF: IND 1.329, FEE 1.194, TENURE 1.356, ARL 1.192	No multicollinearity
Glejser heteroscedasticity	p: IND 0.540, FEE 0.583, TENURE 0.837, ARL 0.676	No heteroscedasticity
Autocorrelation	Durbin-Watson=2.032	No autocorrelation

Table 4 shows the initial normality test for untransformed data produced $p < 0.05$. Therefore, this study transformed the audit quality proxy into the natural logarithm of absolute discretionary accruals. In the final model, the Kolmogorov-Smirnov p -value was 0.054, satisfying the stated normality criterion. The VIF values ranged from 1.192 to 1.356, indicating no multicollinearity. The Glejser test did not indicate heteroscedasticity, and the Durbin-Watson statistic of 2.032 lies in the range used in the thesis to conclude that there is no autocorrelation. These results support the reported specification under the applied criteria; however, the proximity of the normality p -value to the threshold reinforces the need for sensitivity analysis in a larger sample.

Table 5. Hypothesis-test results

Variables	B	SE	Beta	t	p	Decision
Auditor independence (H_1)	-1.420	0.063	-0.934	-22.624	<0.001	Supported
Audit fee (H_2)	-0.105	0.050	-0.090	-2.086	0.040	Supported
Audit tenure (H_3)	0.003	0.021	0.007	0.160	0.873	Not supported
Audit report lag (H_4)	-0.002	0.002	-0.040	-0.925	0.358	Not supported

Table 5 shows the results of the hypothesis tests. Auditor independence has a coefficient of -1.420 and $p < 0.001$. Because the dependent variable is the natural logarithm of absolute discretionary accruals, a negative sign indicates that auditor rotation is associated with lower absolute discretionary accruals. H_1 is supported. This result is consistent with the agency theory view that a stronger professional distance can constrain opportunistic reporting. This is also consistent with evidence that rotation can serve as a mechanism for protecting independence, although rotation is not the only independence measure. Recent Indonesian studies likewise find that independence, competence, or auditor changes can be relevant to audit outcomes, but they do not imply that rotation alone guarantees high quality (Ardhani et al., 2019; Fathonah et al., 2022; Nurfauziah, 2022; Putri & Witono, 2025).

The audit fee has a coefficient of -0.105 and $p = 0.040$. H_2 is supported. In the study's proxy, higher fees are associated with lower absolute Discretionary Accruals (DA). This finding should not be simplified as proof that any fee increase improves audit quality because fees also capture risk, scope, complexity, and client size. Nevertheless, the results support the argument that engagement

with adequate resources may enable auditors to extend procedures and allocate more audit effort. This is consistent with Indonesian evidence that links fees to audit quality or audit engagement conditions, while recent international evidence also shows that auditor characteristics can affect quality without producing a uniform fee premium ([Permatasari & Astuti, 2019](#); [Kirana, 2021](#); [Mahadewi & Dwirandra, 2022](#); [Handoyo & Febriani, 2025](#); [Jérôme et al., 2025](#)).

Audit tenure has a coefficient of 0.003, and $p=0.873$. H_3 is not supported. The absence of a significant association indicates that audit firm tenure does not consistently distinguish audit quality in this sample. The benefits of client-specific knowledge and the risk of auditor-client closeness may offset each other, particularly when the sample contains both short- and long-term relationships. This result is consistent with research that does not establish a universally directional relationship between tenure and the reporting quality. Recent Indonesian studies have also reported non-significant or context-dependent tenure effects, whereas comparative evidence suggests that the role of tenure may differ according to audit-firm type and rotation arrangements ([Kirana, 2021](#); [Sari & Rahmi, 2021](#); [Shafira & Keristin, 2022](#); [Taufiqah et al., 2022](#); [Dewita & NR, 2023](#); [Martani et al., 2021](#)). Therefore, the results call for threshold, partner-level, and audit-firm-size tests rather than concluding that tenure is irrelevant.

Audit report lag had a coefficient of -0.002 and $p=0.358$. H_4 is not supported. The length of the audit process does not directly distinguish the audit quality proxy in energy firms. Lag may be affected by transaction complexity, information readiness, industry specialization, and additional procedures required to obtain sufficient evidence. A longer lag can consequently signal reporting difficulty or careful audit work, while a short lag can reflect prepared records rather than superior-quality records. Recent Indonesian studies likewise show that report-lag determinants vary across sectors and audit characteristics ([Kosasih & Arfianti, 2020](#); [Ma'rifat et al., 2024](#); [Safira & Napisah, 2024](#); [Sijabat & Pangaribuan al., 2025](#); [Sijabat Pangaribuan, 2023](#)). Timeliness remains relevant to the usefulness of information, but it should not be treated as a substitute for audit quality.

Table 6. Simultaneous test and model fit

Statistic	Value	Interpretation
F	137.429	Model is significant
F -test p -value	<0.001	H_1-H_4 are jointly significant
R	0.938	Very strong model association
R^2	0.880	88.0% of Ln_AQ variation is explained
Adjusted R^2	0.874	Model fit after adjustment
Regression observations	80	Firm-year observations

Table 6 shows $F=137.429$ with $p<0.001$, indicates a significant model. $R^2=0.880$ and adjusted $R^2=0.874$ suggest that the four variables explain a large proportion of the reported variation in the transformed audit-quality proxy. These figures require cautious interpretation because the model uses one audit quality proxy, a small purposive sample, and excludes controls such as firm size, leverage, profitability, operational complexity, audit firm size, governance, and year effects. High explanatory power can partly reflect the structure of the selected proxy and the characteristics of the included companies. Therefore, the results show associations in the sample rather than causal effects, and the apparent model fit should be tested against alternative specifications in future studies.

The theoretical implication is that independence and adequate audit resources appear more informative than engagement duration or the speed of audit completion. This is consistent with the view that audit quality depends on a combination of auditor incentives, professional distance, and effort rather than on one observable characteristic. The lack of significant evidence for tenure and audit report lag also indicates that both variables should be interpreted in light of client risk, complexity and information readiness. The findings thus refine, rather than reject, the agency and signaling perspectives: observable characteristics can provide useful signals, but their meaning depends on the mechanism represented and the outcome proxy used.

For management, the findings underline the value of providing auditors with adequate information access, timely documentation and transparent professional fee disclosure. For audit firms, fees should support planning, staffing, specialist consultation, and procedures that are proportionate to risk without compromising objectivity. For investors and creditors, auditor rotation and audit fees can be used as complementary information, not as substitutes for the analysis of cash flows, governance, debt structure, commodity exposure, and operational risk in energy firms. Regulators and audit committees may also use the findings to ask whether a reported fee is consistent with engagement complexity and whether rotation arrangements are accompanied by sufficient knowledge transfer.

The sample characteristics show that data availability is an important selection factor. Of the 91 energy firms, 45 do not publish complete financial statements and annual reports consistent with the study requirements. Twenty-eight lack data for every research variable, especially information needed to measure professional fees and engagement characteristics. The two firms also do not have a December 31 fiscal year-end. The selection results in a balanced panel of 16 firms over five years of data. This pattern justifies the purposive criterion for measurement consistency, but it also raises the possibility of a disclosure-selection bias. The included firms may have more transparent reporting practices than the excluded firms; therefore, generalization should be stated with that boundary.

The minimum and maximum values in the descriptive statistics show the heterogeneity across observations. The audit quality before transformation ranged from 0.0007 to 0.5463. This range indicates that the magnitude of absolute discretionary accruals differs across firms and time periods. The audit report lag ranged from 52 to 178 days. This variation may reflect differences in operating complexity, document readiness, auditor risk assessments, commodity exposure, or the reporting circumstances of individual firms. Descriptive statistics do not test the causes of this variation, but they provide context for the regression results and support the need to include firm- and year-level controls in a larger panel.

The mean auditor independence value of 0.16 indicates that auditor rotation occurs in a limited share of observations. Therefore, the independence result compares observations with rotation against those without rotation, rather than showing a gradual change in independence. The use of natural-log professional fees reduces the nominal scale differences across firms. The mean audit tenure is 3.54 years, with a maximum of nine years, indicating that audit-firm relationships can extend across periods but differ across firms. These characteristics help explain why a binary independence measure and a continuous tenure measure should not be interpreted as interchangeable indicators of the same construct.

The classical assumption results support the use of the final model under the criteria applied in this study. The Kolmogorov-Smirnov value of 0.054 lies only slightly above the 0.05 threshold. VIF values close to one indicate no high linear correlation between the predictors. All Glejser probabilities exceed 0.05. The Durbin-Watson value of 2.032 is also used in the thesis to conclude that there is no autocorrelation in the model. These results do not eliminate every possible bias, including omitted variable bias, measurement error, or selection effects. They show that the tested assumptions do not reveal a violation under the reported specification, whereas larger-sample robustness checks remain necessary.

The H_1 result must be interpreted using a proxy. The coefficient of -1.420 does not imply that auditor rotation reduces audit quality. Instead, this means that rotation is associated with lower Ln absolute discretionary accruals. Because a smaller absolute residual indicates less accrual discretion, the direction is consistent with a better audit quality. This result supports the proposition that professional distance may help auditors preserve objectivity when evaluating financial reports. This finding also aligns with recent Indonesian studies on independence and rotation, although the binary measure cannot distinguish between mandatory and voluntary changes or capture the competence of the incoming auditor ([Ardhani et al., 2019](#); [Chasbiandani et al., 2024](#); [Fathonah et al., 2022](#); [Nurfauziah, 2022](#)).

The H_2 results also require careful interpretation. The audit-fee coefficient of -0.105 indicates a negative association with Ln absolute discretionary accruals, not a causal return from every fee increase. Audit fees reflect risk, scope, complexity, and engagement resources. After considering the other model variables, the result is consistent with the view that adequate resources may support audit time, expertise, and broader procedures. This interpretation accords with the literature that treats fees as part of audit engagement economics and with recent evidence that the fee-quality relationship can vary with auditor characteristics, client risk, and market context ([Permatasari & Astuti, 2019](#); [Mahadewi & Dwirandra, 2022](#); [Handoyo & Febriani, 2025](#); [Jérôme et al., 2025](#)).

The non-significant findings for audit tenure and audit report lag do not indicate that both variables are unimportant in all settings. In this sample, tenure may combine two offsetting forces, such as longer experience can strengthen knowledge of client risk, whereas economic closeness can reduce professional distance. Audit report lag may also increase when reporting issues arise, or when auditors perform additional procedures to obtain sufficient evidence. Therefore, the results should be compared with those of prior studies rather than described as a contradiction. Differences in sector, sample period, auditor firm structure, reporting readiness, and audit quality proxies may explain why significant effects appear in some studies but not in this study ([Dewita & NR, 2023](#); [Kosasih & Arfianti, 2020](#); [Safira & Napisah, 2024](#); [Sijabat & Pangaribuan, 2023](#)). Timeliness should not be treated as a stand-alone measure of the audit quality.

In practice, the model offers a monitoring basis rather than a mechanical decision-making rule. Firms should ensure information availability and document readiness so that auditors can apply adequate procedures. Audit firms should allocate resources according to risk, without allowing economic relationships to compromise objectivity. Investors and creditors can assess auditor characteristics in addition to cash flows, debt structure, commodity exposure, and governance. Audit committees can strengthen this assessment by asking whether a fee is adequate for the engagement's complexity, whether rotation preserves knowledge transfer, and whether a longer reporting period reflects unresolved reporting issues or additional evidence. This joint reading is more informative than relying on a single audit indicator.

The model's explanatory power of 88.0% is high for financial-reporting proxies. The figure shows that the four predictors are jointly associated with a large share of the observed variation in Ln absolute discretionary accruals. R^2 does not show that the four variables cause this variation. Firm size, leverage, profitability, governance, operating complexity, audit firm size, and year-specific shocks are not included as control variables. The high value may also reflect the balanced sample and construction of the dependent variable. Therefore, the results should be read together with the specification limitations and sample size, and should be challenged through alternative proxies and panel estimators.

Table 7. Summary of partial-finding interpretations

Variables	Statistical evidence	Interpretation and implication
Auditor independence	$B=-1.420, p<0.001$, H_1 supported	Rotation was associated with a lower LnDA. Preserving auditor professional distance and objectivity.
Audit fee	$B=-0.105, p=0.040$, H_2 supported	The fee is associated with a lower LnDA. Resources should be adequate to preserve independence.
Audit tenure	$B=0.003, p=0.873$, H_3 not supported	Engagement duration does not significantly distinguish the audit quality in this sample.
Audit report lag	$B=-0.002, p=0.358$, H_4 not supported	Timeliness should not be the sole substitute for audit quality.

Table 7 summarizes how to interpret the partial results. It does not provide any new estimates. Instead, it connects the reported coefficients, significance levels, and interpretive directions from the thesis outputs. This summary helps readers distinguish the sign of the coefficient for the Ln absolute discretionary accrual proxy from the substantive assessment of audit quality. This distinction is important because a negative coefficient is favorable under the selected proxy, whereas the same sign

would require a different interpretation if audit quality were measured directly by an outcome such as an inspection finding or qualified opinion.

The independence and fee findings have separate implications for management and auditing firms. Management should provide data access and adequate fee disclosures. Audit firms should determine resources according to risk rather than pursuing engagement speed alone. Simultaneously, engagement governance must ensure that fee levels do not compromise objectivity. This balance is important because fees reflect both audit capacity and the auditor-client economic relationship. Therefore, a fee review should consider the work required, staff mix, specialist needs, and client risk rather than treating a higher or lower amount as a quality verdict by itself.

The nonsignificant tenure and lag findings also have methodological implications. Future research should test whether both relationships change after firm characteristics and year effects are controlled. Researchers may distinguish partner rotation from audit firm rotation, test tenure thresholds, connect lag with reporting-readiness indicators, and compare discretionary-accrual measures with other audit quality outcomes. These steps can clarify whether the lack of significance reflects energy sector conditions, sample size, proxy choices, or unobserved variation. They also responded to the reviewer's concern that a small purposive sample should be supported by robustness tests rather than by broad generalization.

The relationship between descriptive statistics and regression tests remains distinct. Mean tenure, audit fees, and audit report lag do not independently determine the hypothesis decision. H_1 through H_4 are determined from the model coefficients and significance values after the predictors are analyzed jointly. The means therefore describe the observations, whereas regression indicates conditional association patterns under reported specifications. This distinction is particularly important for the independence dummy variable, whose mean reflects the share of rotated observations rather than a continuous level of auditor objectivity.

The significant simultaneous result also does not imply that every partial hypothesis is supported. A significant F-statistic indicates that the independent variables are jointly associated with audit quality. The partial p-values show that only auditor independence and audit fees retain significant associations when the other variables are considered. This distinction keeps the model conclusion, variable discussion, and practical implications internally consistent. This also explains why the study finds a strong joint model while reporting non-significant tenure and report-lag coefficients.

5. CONCLUSIONS

5.1 Conclusion

The principal contribution of this study is to show that, within Indonesian listed energy firms during 2021–2025, observable professional distance and engagement resources are more informative for the selected audit quality proxy than tenure or completion speed. Auditor independence and audit fees are significantly associated with lower Ln absolute discretionary accruals, whereas audit tenure and audit report lag are not significant. The theoretical meaning is not that rotation or fees guarantee high-quality audits rather, the results support the agency argument that objective monitoring and sufficient audit effort matter, while the signaling value of tenure and timeliness is conditional on the context. Therefore, the contribution is sector-specific and measurement-aware.

Together, the four variables form a significant model with an R^2 of 0.880 and an adjusted R^2 of 0.874. This level of explanatory power highlights the value of considering several auditor-and client characteristics together; however, it should not be treated as evidence that the variables cause the reported variation or that the result applies to every energy firm. In practice, firms and audit committees should support auditor access, adequate engagement resources, and professional distance. For research, the main implication is to extend the model with controls, alternative audit quality measures, and robustness designs so that the observed associations can be separated from disclosure selection and unobserved firm conditions.

5.2 Research Limitations

This study has limitations in terms of sample size and data coverage. It includes only 16 firms and 80 firm-year observations, therefore, generalization should be cautious. Purposive selection also depends on report availability, professional fee disclosure, and a common fiscal year-end. Firms without complete information are not included in the analysis, and these firms may differ in transparency, size, complexity, or audit arrangements. The balanced panel improves comparability but does not eliminate selection bias or the limited statistical power associated with a small number of firms in the sample.

Audit quality is measured only through absolute discretionary accruals using the Kasznik model. The proxy captures accrual-discretion patterns but does not observe every dimension of the audit process, and the estimation may be sensitive to sector conditions and the model assumptions. Auditor independence is also proxied by rotation and therefore does not capture all independence dimensions, such as economic pressure, oversight quality, audit partner characteristics, or whether a change is mandatory or voluntary. Audit fees similarly combine resource, risk, and complexity information. These measurement boundaries require the findings to be interpreted as evidence of the selected proxies rather than as a complete assessment of audit quality.

The transformed regression output used for hypothesis testing does not report constants. This study did not reconstruct or invent these values. Future studies should retain the sampled firm list, calculation sheet, transformation syntax, and complete regression output. They may also use alternative audit quality proxies, add firm size, leverage, profitability, complexity, audit firm size, governance, and year controls, and apply panel data methods to test the robustness of the results. Sensitivity analysis could compare the untransformed and transformed proxies, use alternative accrual models, distinguish audit-partner from audit-firm tenure, and test whether the conclusions survive changes in the sample composition.

5.3 Suggestions and Directions for Future Research

Future studies should retain the sampled firm list, calculation sheet, transformation syntax, and complete regression output; compare alternative audit quality proxies; add firm size, leverage, profitability, complexity, audit firm size, governance, and year controls, and apply panel data or robustness methods to test whether the observed associations remain stable. Researchers should also enlarge the energy firm sample, include firms with different fiscal year-ends through an appropriate lag definition, distinguish voluntary from mandatory auditor changes, and examine partner-level rotation. These extensions would strengthen generalizability and explain why tenure and report lag are insignificant in the present, balanced sample.

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AUTHOR CONTRIBUTIONS

TO contributed to the conceptualization, literature review, data collection, data analysis, and initial manuscript preparation. DD contributed to the research methodology, supervision, validation, and critical revision of the manuscript. DP contributed to data interpretation, manuscript review, and refinement of the final version. All authors have read and approved the final manuscript.

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