



Governance, Firm Characteristics, and Audit Fees: Panel Evidence from Indonesian Financial Firms

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ABSTRACT

This study reassesses governance and firm-level determinants of audit fees in Indonesia's financial sector while explicitly accounting for the repeated firm-year structure of the data. The sample comprises a balanced panel of 59 listed financial firms observed from 2020 to 2024 (295 firm-year observations). Audit fees and total assets are expressed in natural logarithms; the highly skewed counts of internal audit personnel and subsidiaries are transformed using $\ln(1+x)$. The analysis replicates conventional pooled ordinary least squares (OLS), then introduces year effects, firm-clustered standard errors, random-intercept estimation, firm fixed effects, and a correlated random-effects (Mundlak) specification. Firm effects are jointly significant, and the Mundlak test rejects the conventional random-effects independence assumption. Accordingly, the correlated random-effects model is treated as the preferred specification. Conventional OLS suggests positive associations for internal audit staffing, audit committee activity, and firm size. Once within-firm dependence and persistent firm heterogeneity are addressed, however, the governance coefficients are no longer statistically distinguishable from zero. Firm size retains a strong positive association in pooled and random-effects models, while its within-firm coefficient remains positive but marginal in the preferred model. Year effects are jointly significant, indicating that common temporal shocks also shaped audit pricing during 2020-2024. The findings show that inference about audit-fee determinants is sensitive to panel specification and standard-error correction. Persistent differences across firms and changes over time explain more of the observed variation than annual changes in the simple governance, leverage, and subsidiary-count proxies used here.

INTRODUCTION

Audit fees represent the price of external assurance and therefore reflect both the auditor's expected effort and the client's demand for monitoring. For listed financial firms, the pricing problem is especially consequential. Their balance sheets are highly leveraged by design, their transactions are closely regulated, and failures in reporting can transmit costs beyond the contracting parties. Indonesian regulation requires listed financial institutions to appoint competent and independent public accountants, while audit committees are expected to consider fee levels, expertise, and engagement risk when recommending an auditor. These requirements strengthen the institutional basis for audit quality, but they do not impose a uniform tariff. Fees remain negotiated and vary substantially across firms and years.

Agency theory explains why shareholders and regulators demand credible monitoring when managers possess superior information (Jensen & Meckling, 1976). Audit-pricing theory adds a supply-side mechanism: the audit fee compensates the auditor for expected effort, client complexity, and engagement risk (Simunic, 1980). Governance arrangements can raise fees when boards and audit committees demand broader assurance, but they can also reduce fees when effective internal monitoring substitutes for external work. Client characteristics such as scale, leverage, and organizational complexity influence the scope of procedures needed to obtain sufficient appropriate evidence. These competing mechanisms mean that the sign and strength of individual determinants are empirical questions rather than automatic implications of stronger governance.

Prior Indonesian studies report inconsistent results for internal audit staffing, board independence, audit committee activity, leverage, and subsidiary structure. Firm size is more consistently associated with audit fees, although even that relationship may partly reflect persistent differences across firms, auditor choice, and common time trends. A methodological issue is therefore central. When the same firms are observed repeatedly, pooled OLS treats firm-year records as if they were independent. Standard errors may be understated when residuals are correlated within firms, and coefficients may absorb time-invariant characteristics that are not included in the model (Petersen, 2009; Wooldridge, 2010).

This study revisits audit-fee determinants using a balanced panel of 59 financial firms listed on the Indonesia Stock Exchange from 2020 to 2024. The sample contains 295 firm-year observations. The empirical design distinguishes conventional pooled associations from within-firm relationships by using year effects, firm-clustered inference, firm fixed effects, and a correlated random-effects (Mundlak) specification. This approach is important because financial firms differ persistently in business model, reporting architecture, regulatory intensity, and bargaining relationships with auditors. Those differences can be correlated with the observed governance and firm-characteristic variables.

The study makes three contributions. First, it integrates demand-side governance variables and supply-side audit-effort determinants within an audit-pricing framework. Second, it demonstrates how conclusions change

when panel dependence and unobserved firm heterogeneity are addressed. Third, it provides recent evidence from Indonesia's financial sector over a period that includes pandemic disruption, recovery, and regulatory change. The contribution is deliberately bounded: the analysis identifies conditional associations, not causal effects, and it cannot eliminate selection arising from voluntary audit-fee disclosure.

LITERATURE REVIEW

Agency Theory and Audit Pricing

Agency theory views external auditing as a monitoring response to information asymmetry and conflicts of interest between managers and capital providers (Jensen & Meckling, 1976). Audit-pricing theory explains the fee as compensation for the expected quantity of audit work and the risk borne by the auditor (Simunic, 1980). Together, these perspectives imply two broad classes of determinants. Governance mechanisms affect the demand for assurance and the quality of internal monitoring. Firm characteristics affect the volume, complexity, and risk of the engagement. The empirical model therefore includes internal audit staffing, board independence, audit committee activity, firm size, leverage-based risk, and subsidiary structure.

Internal Audit Function

An effective internal audit function can reduce control risk and provide evidence that external auditors may use, creating a substitution effect and lowering external audit effort. The opposite mechanism is also plausible: well-resourced internal audit may signal a stronger assurance environment in which management purchases more extensive external verification. Because the available data measure staff numbers rather than internal-audit quality, the negative substitution prediction is tested while recognizing that headcount is an incomplete proxy.

H1: Internal audit function is negatively associated with audit fees.

Board Independence

Independent commissioners are expected to strengthen oversight of financial reporting. Stronger oversight may increase the board's demand for audit scope, specialist involvement, and communication with those charged with governance. The audit-pricing implication is therefore a positive association, although formal independence may not translate into substantive monitoring in every firm.

H2: Board independence is positively associated with audit fees.

Audit Committee Activity

Audit committees oversee financial reporting, internal control, and external-auditor appointment. More frequent meetings can indicate more intensive monitoring and greater demand for assurance, which may increase external audit effort. Meeting frequency can also respond to emerging reporting problems, so the association is interpreted as conditional rather than causal.

H3: Audit committee activity is positively associated with audit fees.

Firm Size

Firm size is the most established determinant in audit-pricing research. Larger firms conduct more transactions, operate more reporting systems, and typically require broader audit coverage. Total assets are therefore expected to be positively associated with audit fees.

H4: Firm size is positively associated with audit fees.

Firm Risk

Client risk can increase the probability of material misstatement and the auditor's expected exposure, leading to additional procedures and higher fees. This study uses the debt-to-assets ratio as the available risk proxy. The measure must be interpreted cautiously in financial firms because leverage is integral to many financial business models rather than an unambiguous indicator of distress.

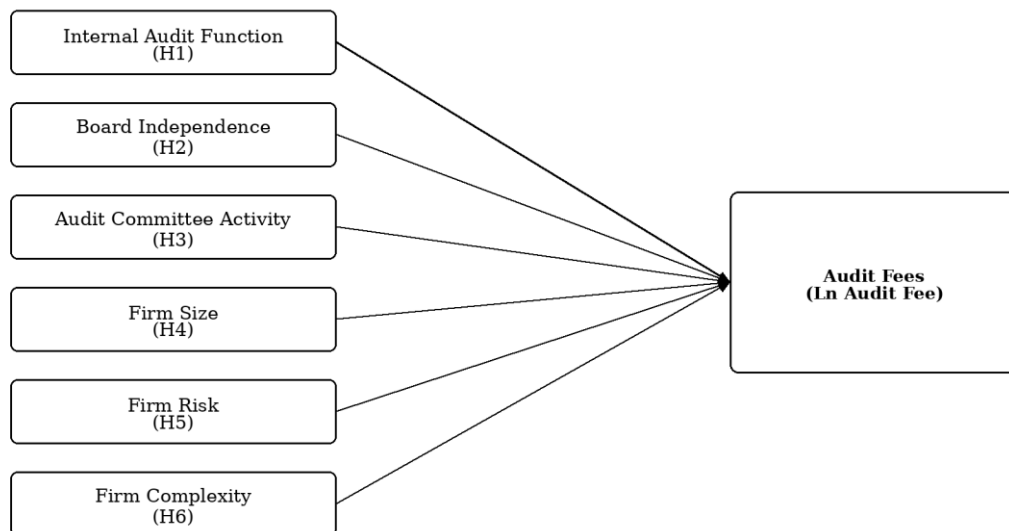
H5: Firm risk is positively associated with audit fees.

Firm Complexity

Subsidiaries expand the consolidation perimeter and can increase the number of reporting units that must be audited. A larger subsidiary network is therefore expected to be associated with higher fees. Subsidiary count remains a coarse proxy because it does not capture size, location, activity, or transaction complexity.

H6: Firm complexity is positively associated with audit fees.

Figure 1 summarizes the hypothesized associations. The arrows represent theoretical expectations rather than identified causal effects.



Hypothesized associations; the empirical analysis uses a balanced firm-year panel with year effects and firm-clustered inference.

Figure 1. Conceptual framework

Source: Authors' conceptualization. Note. The empirical analysis estimates conditional associations using a balanced firm-year panel; year effects and firm-level dependence are incorporated in the econometric models.

METHODOLOGY

Research Design, Sample, and Data

The study uses secondary data from audited annual reports and financial statements of financial-sector companies listed on the Indonesia Stock Exchange. The initial screening identified 97 firms that published annual reports consistently during 2020-2024. Thirty-eight firms were excluded because the nominal audit fee was not disclosed, leaving 59 firms observed in each of five years. The final dataset is therefore a balanced panel of 295 firm-year observations.

The disclosure criterion improves measurement consistency because the dependent variable is based on an explicitly reported audit fee rather than a broader professional-fees account. It also creates a potential selection problem: disclosing firms may be larger, more transparent, or governed differently from non-disclosing firms. Data for the excluded firms were not available in the supplied tabulation, so disclosure selection cannot be modeled formally and remains a limitation of the analysis.

Variable Measurement and Data Preparation

Audit fee is measured as the natural logarithm of the nominal amount disclosed in the annual report. Firm size is the natural logarithm of total assets. Board independence is the ratio of independent commissioners to total commissioners, and firm risk is total liabilities divided by total assets. Audit committee activity is the annual number of meetings; dividing meetings by the regulatory minimum would change only the coefficient's scale and is therefore avoided. Internal audit staffing and subsidiary count are highly right-skewed, so the preferred specification uses $\ln(1+x)$ transformations. The original raw-count coding is retained as a sensitivity analysis.

Table 1. Variable definitions

Variable	Preferred measurement	Expected sign	Rationale/source
Audit fee	$\ln(\text{nominal audit fee})$	Dependent variable	Audit-pricing outcome
Internal audit function	$\ln(1 + \text{internal audit staff})$	–	Kusumajaya (2018); substitution mechanism
Board independence	Independent commissioners / total commissioners	+	Herlambang and Nurbaiti (2023)
Audit committee activity	Annual number of audit committee meetings	+	Lailatul and Merlyana (2021)
Firm size	$\ln(\text{total assets})$	+	Simunic (1980); Amran et al. (2021)
Firm risk	Total liabilities / total assets	+	Rifaldi (2024)
Firm	$\ln(1 + \text{number of})$	+	Paramitha and

complexity	subsidiaries)		Setyadi (2022)
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Note. Logarithmic transformations are used for highly skewed count and monetary variables. Hypothesized signs describe theoretical expectations, not presupposed statistical significance.

Econometric Strategy

The original pooled OLS model is replicated as a benchmark. The panel structure is then addressed in four steps. First, year indicators are added to absorb common macroeconomic and institutional shocks, and standard errors are clustered by firm to allow heteroskedasticity and arbitrary within-firm correlation (Petersen, 2009). Second, a random-intercept model is estimated. Third, firm fixed effects are included to absorb all time-invariant firm characteristics, including stable subsector membership. Fourth, a correlated random-effects specification augments the model with each firm's time average of the time-varying regressors (Mundlak, 1978). This specification reproduces the fixed-effects within coefficients while allowing a direct test of whether the random effect is correlated with the regressors.

Firm effects are jointly significant ($F = 31.369$, $p < 0.001$). The firm means in the Mundlak model are also jointly significant ($\chi^2 = 16.301$, $p = 0.012$), rejecting the conventional random-effects independence assumption. The correlated random-effects model with year indicators and firm-clustered standard errors is therefore designated as the preferred specification. Firm fixed effects, 1st-99th percentile winsorization, first differences, and the original raw-count coding are reported as robustness checks. Statistical inference is two-sided at the 5% level, but coefficients close to that threshold are described as marginal rather than dichotomized.

The preferred model can be written as $\ln(\text{Fee}_{it}) = \beta X_{it} + \theta X_i + \lambda_t + u_{it}$, where X_{it} contains the six time-varying determinants, X_i contains their firm-specific means, and λ_t denotes year effects. The coefficients β represent within-firm associations after controlling for persistent between-firm differences. The design remains observational; neither the panel estimator nor clustered standard errors establish causal effects.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 2 shows substantial dispersion in the raw data. Audit fees range from Rp55 million to Rp22.8 billion. Internal audit staffing is particularly skewed: the mean is 51.1 employees, the median is 15, and the maximum is 714. Subsidiary counts also contain many zeros. These distributions support the logarithmic transformations used in the preferred panel specification.

Table 2. Descriptive statistics

Variable	N	Mean	Median	SD	Q1	Q3	Min	Max
Ln audit fee	295	20.886	20.723	1.279	20.030	21.567	17.823	23.850
Internal audit staff	295	51.108	15.000	97.916	7.000	61.500	3.000	714.000
Board independence	295	0.532	0.500	0.119	0.400	0.646	0.200	0.750

Audit committee meetings	295	10.902	8.000	8.145	5.000	14.000	4.000	43.000
Ln total assets	295	30.333	30.021	2.254	28.603	32.032	25.325	35.426
Debt-to-assets ratio	295	0.657	0.697	0.279	0.492	0.839	0.002	1.568
Subsidiaries	295	1.803	0.000	3.064	0.000	2.000	0.000	14.000

Source: Authors' calculations from 295 firm-year observations. Q1 and Q3 denote the 25th and 75th percentiles.

Panel Diagnostics and Model Selection

The model-selection diagnostics reject a purely pooled treatment of the data. Firm effects are strongly jointly significant, and the Mundlak test indicates correlation between persistent firm heterogeneity and the observed regressors. Year effects are jointly significant in the preferred model ($\chi^2 = 22.677$, $p < 0.001$), with positive coefficients for 2022-2024 relative to 2020. These results confirm that both firm-specific persistence and common time shocks matter for audit-fee inference.

Table 3. Panel Diagnostics and Estimator Selection

Diagnostic	Statistic	Interpretation
Balanced panel	59 firms $\times$ 5 years = 295 observations	No missing firm-years
Joint firm-effects test	$F = 31.369$; $p < 0.001$	Pooled homogeneity rejected
Mundlak test of firm means	$\chi^2 = 16.301$; $p = 0.012$	Conventional RE independence rejected
Joint year-effects test	$\chi^2 = 22.677$; $p < 0.001$	Common time shocks are material
Preferred estimator	CRE/Mundlak + year effects + firm-clustered SE	Controls correlated firm heterogeneity
Within R^2 (FE equivalent)	0.321	Explained within-firm variation

Panel Regression Results

Table 4 shows that the original cross-sectional inference is sensitive to panel corrections. Conventional OLS yields statistically significant positive coefficients for internal audit staffing, audit committee activity, and firm size. After year effects and firm-clustered standard errors are introduced, only firm size remains statistically distinguishable from zero. The random-intercept model produces a similar size association, but the Mundlak test rejects its independence assumption.

In the preferred correlated random-effects model, none of the six within-firm coefficients meets the 5% significance threshold. Firm size remains positive and is marginal ($\beta = 0.233$, $p = 0.058$; 95% CI $[-0.008, 0.474]$). Its magnitude implies that a 10% within-firm increase in assets corresponds to approximately

a 2.3% increase in audit fees, conditional on the other variables, firm means, and year effects. Audit committee activity is positive but imprecise ($\beta = 0.0067$, $p = 0.191$), indicating that the significant pooled result does not survive correction for persistent firm heterogeneity and within-firm dependence.

Table 4. Audit-fee determinants across panel specifications

Variable	Conventional OLS	Pooled + year FE	Random intercept + year FE	CRE/Mundlak (preferred)	Firm FE robustness
	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
Ln(1+internal audit staff)	0.147*** (0.056)	0.152 (0.121)	0.099 (0.085)	-0.179 (0.197)	-0.179 (0.219)
Board independence	0.615† (0.332)	0.675 (0.623)	-0.369 (0.227)	-0.457 (0.309)	-0.457 (0.343)
Audit committee meetings	0.0157* (0.0064)	0.0139 (0.0099)	0.0081 (0.0050)	0.0067 (0.0051)	0.0067 (0.0057)
Ln(total assets)	0.387*** (0.042)	0.386*** (0.075)	0.368*** (0.052)	0.233† (0.123)	0.233† (0.136)
Debt-to-assets ratio	-0.255 (0.166)	-0.249 (0.357)	0.080 (0.151)	0.160 (0.195)	0.160 (0.216)
Ln(1+subsidiaries)	0.037 (0.051)	0.041 (0.101)	0.046 (0.083)	0.035 (0.065)	0.035 (0.072)
Year effects	No	Yes	Yes	Yes	Yes
Firm effects / means	No	No	Random intercept	Firm means included	Firm fixed effects
Firm-clustered SE	No	Yes	No	Yes	Yes
Observations / firms	295 / 59	295 / 59	295 / 59	295 / 59	295 / 59
Adjusted / within R ²	0.756	0.756	—	0.758 overall; 0.321 within	0.321 within

Notes. Standard errors are in parentheses. The pooled, CRE/Mundlak, and fixed-effects columns use firm-clustered standard errors where indicated. The conventional OLS column is reported only to demonstrate specification sensitivity. *** $p < 0.001$; * $p < 0.05$; † $p < 0.10$.

Robustness Analyses

Three robustness checks reinforce the preferred inference. First, winsorizing the dependent variable and regressors at the 1st and 99th percentiles leaves all focal coefficients statistically indistinguishable from zero in the fixed-effects model; firm size remains positive and marginal ($p = 0.070$). Second, first-difference estimation produces the same substantive pattern, with firm size positive but marginal ($p = 0.094$) and no robust governance association. Third,

retaining the original raw counts creates a small negative internal-audit coefficient in the firm-effects model, but that result disappears after the theoretically justified $\ln(1+x)$ transformation and winsorization. It is therefore treated as outlier-sensitive rather than substantive.

Table 5. Robustness of the within-firm estimates

Variable	Preferred CRE	Winsorized firm FE	First differences
$\ln(1+\text{internal audit staff})$	-0.179 (0.197)	-0.171 (0.220)	-0.004 (0.206)
Board independence	-0.457 (0.309)	-0.443 (0.349)	-0.618† (0.349)
Audit committee meetings	0.0067 (0.0051)	0.0062 (0.0055)	0.0018 (0.0032)
$\ln(\text{total assets})$	0.233† (0.123)	0.258† (0.143)	0.203† (0.121)
Debt-to-assets ratio	0.160 (0.195)	0.134 (0.258)	0.070 (0.176)
$\ln(1+\text{subsidiaries})$	0.035 (0.065)	-0.020 (0.079)	-0.025 (0.094)
Observations	295	295	236

Notes. Firm-clustered standard errors are in parentheses. Winsorization is applied at the 1st and 99th percentiles. First differences remove one observation per firm. † $p < 0.10$.

Governance Mechanisms

The panel results do not support a robust within-firm association between internal audit staffing and audit fees. This finding should not be interpreted as evidence that internal audit quality is irrelevant. The available measure is headcount, and the descriptive statistics reveal extreme dispersion. Staff numbers do not capture competence, budget, risk-based coverage, quality assurance, or the external auditor's actual reliance on internal audit work. The sign reversal between pooled and within-firm models further suggests that headcount is confounded with persistent differences in organizational scale and control architecture.

Board independence is also not statistically distinguishable from zero in the preferred model. Formal ratios may vary too little within firms over five years to identify a precise association, and regulatory compliance does not guarantee substantive monitoring. The result is therefore a lack of robust evidence for this proxy, not proof that independent oversight has no role in audit contracting.

Audit committee activity illustrates why panel correction matters. Conventional OLS reproduces the positive association reported in parts of the prior literature, but the coefficient loses significance after standard errors are clustered and persistent firm heterogeneity is controlled. Firms with stronger governance systems may both meet more frequently and pay higher fees, yet annual increases in meeting frequency do not correspond reliably with fee increases within the same firm. Meeting counts may also rise in response to reporting problems, making causal interpretation inappropriate.

Firm Characteristics

Firm size is the only determinant that remains consistently positive across all models. The pooled and random-intercept estimates are large and highly

significant, confirming that larger financial firms pay higher audit fees. The preferred within-firm estimate is smaller and marginal. This difference is informative: much of the size-fee relationship reflects persistent cross-firm differences, while annual asset growth within a given firm has a more modest association with fee changes.

The leverage-based risk proxy is not robust. This is plausible in a financial-sector sample because liabilities are fundamental to banking, insurance, and financing business models. A common debt-to-assets ratio may therefore mix operating structure with distress risk. Future research should use sector-specific measures such as non-performing financing, capital adequacy, liquidity risk, loss indicators, or regulatory intervention.

Subsidiary count is likewise not associated with fees after firm heterogeneity is controlled. The result may reflect measurement limitations rather than an absence of complexity effects. A count treats all subsidiaries as equivalent and ignores size, location, business activity, and consolidation difficulty. Segment data, foreign operations, branches, special-purpose entities, and complex financial instruments would provide more direct measures of audit scope.

Theoretical and Practical Implications

The findings refine agency and audit-pricing interpretations in two respects. First, governance structures should not be assumed to translate mechanically into audit-fee changes. Demand for assurance depends on the effectiveness and behavior of monitoring bodies, not simply staffing counts, independence ratios, or meeting frequency. Second, the strong pooled size coefficient contains both within-firm and between-firm components. Audit-pricing research that ignores persistent firm heterogeneity may attribute stable cross-company differences to annual changes in governance variables.

For audit committees and managers, the results caution against benchmarking fees solely from visible structural indicators. Engagement pricing should be supported by a documented assessment of reporting systems, transaction complexity, regulatory obligations, specialist needs, and auditor risk. For researchers, the results demonstrate that clustered panel inference is not a minor technical adjustment: it changes the substantive conclusion regarding audit committee activity and internal audit staffing.

CONCLUSION AND RECOMMENDATION

This study reassessed six proposed determinants of audit fees using a balanced panel of 59 Indonesian financial firms over 2020-2024. Conventional OLS suggests positive associations for internal audit staffing, audit committee activity, and firm size. Those conclusions are not equally robust. After year effects, firm-level clustering, and correlated firm heterogeneity are addressed, the governance variables, leverage, and subsidiary structure are not statistically distinguishable from zero. Firm size remains positive across specifications, but its within-firm coefficient is only marginal in the preferred correlated random-effects model.

The central conclusion is therefore methodological as well as substantive. Persistent differences between financial firms and common time shocks explain a substantial share of audit-fee variation. Annual changes in simple governance and complexity proxies provide limited additional explanatory power. The evidence supports careful panel estimation and restrained; association-based interpretation rather than causal claims based on pooled firm-year observations.

FURTHER STUDY

Several limitations remain. First, audit-fee disclosure is voluntary, and 38 of the 97 initially screened firms were excluded because fee data were unavailable. Without firm-level information for non-disclosers, selection into the analytical sample cannot be modeled. Second, the dataset does not contain auditor type, audit opinion, profitability, losses, tenure, switching, or audit-report lag. Time-varying omitted variables may therefore remain correlated with the included predictors. Third, the governance measures are structural proxies rather than direct assessments of effectiveness. Fourth, a common leverage measure is imperfect across heterogeneous financial business models. Fifth, nominal audit fees are not separately deflated, although year effects absorb common nominal and institutional shifts.

Future research should combine audit-fee disclosure data with auditor characteristics, profitability, regulatory-risk measures, and subsector-specific controls. A selection model comparing disclosers with non-disclosers would strengthen external validity. Longer panels could examine dynamic adjustment and lagged governance effects, while richer internal-audit and audit-committee measures could test substitution and complementarity mechanisms directly.

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