Contents lists available at Science-Gate

International Journal of Advanced and Applied Sciences

Journal homepage: https://www.science-gate.com/IJAAS.html

Determinants of audit quality in Indonesian public accounting firms: The selective moderating role of the quality control system

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ARTICLE INFO

Article history:
Received 23 June 2026
Received in revised form
1 October 2026
Accepted 15 October 2026

Keywords:
Audit quality
Auditor independence
Audit experience
Quality control system
Time budget pressure

ABSTRACT

Audit quality results from the interaction of auditor capabilities, engagement conditions, external oversight, and firm-level quality governance. This study examines whether third-party review, time budget pressure, audit fees, work experience, independence, and continuing professional education affect audit quality, and whether a Quality Control System (QCS) moderates these relationships. From a target population of 1,442 auditors, 304 valid questionnaire responses from auditors working in public accounting firms in Medan, North Sumatra, were analyzed using partial least squares structural equation modelling. Third-party review ($\beta = 0.278$, $p < 0.001$), work experience ($\beta = 0.243$, $p < 0.001$), independence ($\beta = 0.129$, $p = 0.019$), and continuing professional education ($\beta = 0.264$, $p = 0.001$) were positively associated with audit quality. Time budget pressure had a negative association with audit quality ($\beta = -0.153$, $p = 0.004$), whereas audit fees had no significant association ($\beta = -0.053$, $p = 0.282$). Among the six interaction effects, only the interaction between QCS and time budget pressure was significant ($\beta = 0.112$, $p = 0.002$). This finding indicates that QCS helps reduce quality risks associated with time pressure rather than strengthening all factors affecting audit quality. The study contributes to understanding audit quality by distinguishing internal auditor-level factors from external and engagement-level conditions and identifying the conditions under which QCS is effective. Public accounting firms should prioritize risk-based time budgeting, escalation protocols, engagement reviews, competence development, and monitoring and remediation procedures.

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1. Introduction

Reliable external audits reduce information risk and support confidence in financial reporting. Audit quality is therefore not only an engagement outcome but also a public-interest concern involving auditors, audit firms, regulators, clients, and users of financial statements. The audit-quality framework issued by the International Auditing and Assurance Standards Board (IAASB, 2014) located quality in the interaction of inputs, audit processes, outputs, stakeholder interactions, and contextual conditions. Recent quality-management standards sharpen this view by requiring audit firms to identify quality objectives, assess quality risks, design responses, and monitor and remediate deficiencies (Lee and Menon, 2026). Indonesian audit failures and enforcement cases have sustained concern about whether unmodified audit opinions always reflect sufficiently robust audit work. Such cases should not be interpreted as proof that every audit failure has the same cause. They do, however, show that audit quality can deteriorate through different channels: inadequate external scrutiny, compressed time budgets, economically weak or excessive fee arrangements, insufficient experience, compromised independence, or outdated professional knowledge. These channels operate at different analytical levels and should not be treated as interchangeable.

Prior research has often examined these determinants separately. Independent oversight can strengthen credibility and discipline (Elshandidy et al., 2021), while excessive workload and unfavorable audit-hour variances can impair audit performance (Hwang and Hong, 2022). Experience and continuing professional education improve the resources available for judgment and risk response (Contessotto et al., 2021; Ocak et al., 2022). Evidence on audit fees is more mixed because fees may

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represent necessary effort, client complexity, market power, or economic bonding rather than quality itself (Kung et al., 2021; Novak and Knechel, 2023).

A further limitation in the literature is the common assumption that a firm's Quality Control System (QCS) strengthens every positive determinant and neutralizes every negative determinant. Modern quality-management standards do not imply such uniformity. A risk-based system is tailored to the firm's circumstances and is expected to respond more strongly to some quality risks than to others. This creates an empirical question: does QCS operate as a universal moderator, or is its moderating effect selective?

This study addresses that question using survey data from 304 auditors in public accounting firms in Medan, North Sumatra. It makes three contributions. First, it organizes six determinants into auditor-level internal factors and external or engagement-level factors, thereby reducing theoretical fragmentation. Second, it tests QCS as a boundary condition across all six relationships. Third, it treats the non-significant interaction effects as theoretically informative rather than as failed results, showing where formal firm-level controls may not add to direct personal, market, or regulatory mechanisms.

2. Literature review

2.1. Audit quality as a multilevel outcome

Audit quality is the probability that an audit is planned, performed, reviewed, and reported in a manner that produces sufficient appropriate evidence and an independent, supportable opinion. Because quality is not directly observable, it is commonly inferred from auditor inputs, engagement processes, inspection findings, reporting outcomes, and stakeholder perceptions (Christensen et al., 2016; Francis, 2011). The IAASB framework is used here as the primary integrative structure because it accommodates factors located at the individual auditor, engagement, firm, and regulatory levels.

Agency reasoning explains why external audit quality is demanded: an independent audit reduces information asymmetry between management and parties that rely on financial statements. Human-capital reasoning explains why experience and professional learning matter for technical judgment. Occupational stress reasoning explains why excessive time pressure can convert normal engagement demands into dysfunctional behavior. These mechanisms are treated as supporting explanations within the multilevel audit-quality framework, not as separate theories competing to explain the entire model.

2.2. Auditor-level internal factors

Auditor-level internal factors are capabilities or professional orientations that reside primarily in the individual respondent. Work experience develops pattern recognition, client and industry knowledge, and the ability to connect evidence with audit risk (Contessotto et al., 2021). Independence is the willingness and ability to make judgments without inappropriate client influence; its importance is especially visible when economic relationships or complex estimates create incentives to accommodate management (Carcello et al., 2020). Continuing professional education (CPE) sustains competence as standards, technologies, and business models change. International education standard (IES) 7 (IFAC, 2018) emphasizes demonstrable competence rather than attendance alone, and recent evidence associates relevant CPE with better audit outcomes (Ocak et al., 2022).

CPE is often organized by the profession or the firm, but the construct is classified as an internal factor in this study because the questionnaire measures the auditor's accumulated knowledge-development experience and its perceived use in audit work. This explicit measurement-level classification avoids confusing the source of training with the level at which its effect is observed.

2.3. External and engagement-level factors

External and engagement-level factors originate outside the auditor's accumulated personal capability. Third-party review includes inspection, peer review, or other independent evaluation by regulators and professional bodies. Such oversight can increase compliance, remediation, and reputational discipline, although its effect depends on reviewer independence, expertise, and follow-up (Elshandidy et al., 2021).

Time budget pressure is an engagement condition created when the time available is insufficient relative to task complexity and required audit effort. Moderate deadlines can coordinate work, but excessive pressure may encourage premature sign-off, reduced testing, weak documentation, or underreporting of time. Recent evidence shows that workload becomes particularly harmful when actual audit effort exceeds budgeted hours (Hwang and Hong, 2022).

Audit fees are also engagement-level conditions. Adequate fees can finance sufficient staffing, specialist involvement, review, and consultation. Nevertheless, a higher fee is not automatically a quality signal: it may reflect client complexity, initial-engagement costs, risk premiums, scarcity of expertise, or economic dependence (Carson et al., 2022; Novak and Knechel, 2023). The expected fee-quality relationship is therefore positive in resource terms but empirically uncertain.

2.4. Quality control system

The QCS construct captures firm-level policies and procedures intended to support compliance with professional standards, ethical requirements, engagement performance, human-resource

competence, consultation, review, documentation, monitoring, and remediation.

Indonesia's current quality-management direction is reflected in Indonesian Institute of Public Accountants (Standar Manajemen Mutu, SMM 1), which replaces a purely procedural control orientation with a proactive and risk-based system tailored to the nature and circumstances of the firm and its engagements (Lee and Menon, 2026). Internationally, International Standard on Quality Management (ISQM) 1 (IAASB, 2020) follows the same logic, while Public Company Accounting Oversight Board (PCAOB) QC 1000 (pcaobus.org) applies a risk-based framework to registered firms and is scheduled to become effective on 15 December 2026.

The empirical variable retains the label QCS because the questionnaire was developed under the earlier quality-control terminology. Conceptually, however, it is interpreted as a firm-level governance mechanism that can allocate resources, impose review checkpoints, protect independence, and trigger remediation. Its effect should be strongest where a formal system can directly change engagement behavior, and weaker where the focal determinant is already external to the firm or is primarily an individual capability (Al Frijat, 2020).

2.5. Integrated conceptual model

The model distinguishes two groups of predictors. External and engagement-level factors comprise third-party review, time budget pressure, and audit fees. Auditor-level internal factors comprise work experience, independence, and CPE. Audit quality is the outcome, while QCS is a firm-level contextual mechanism. The model therefore combines direct effects across levels with cross-level moderation. This structure clarifies that 'internal' and 'external' refer to the level at which each construct is measured and theorized, not to whether the construct can ever be influenced by another actor. The theoretical classification of the constructs and their expected roles is summarized in Table 1.

2.6. External and engagement-level determinants

Third-party review raises the expected cost of non-compliance and creates formal feedback for remediation. When review findings are credible and followed up, auditors and firms have stronger incentives to comply with standards and correct recurring deficiencies (Elshandidy et al., 2021).

H1: Third-party review is positively associated with audit quality.

Time budget pressure restricts the time available to obtain and evaluate evidence. When the budget is not aligned with engagement risk and complexity, auditors may reduce procedures, rely excessively on prior-year work, or complete documentation without adequate investigation. Empirical evidence generally links excessive pressure or unfavorable hour variances with lower audit quality (Hwang and Hong, 2022).

H2: Time budget pressure is negatively associated with audit quality.

Table 1: Theoretical classification of the constructs

Analytical level	Constructs	Primary mechanism	Expected role
External/regulatory	Third-party review	Independent oversight, detection, and remediation	Positive direct effect
Engagement	Time budget pressure; audit fees	Resource sufficiency, workload, effort, and economic incentives	Negative for pressure; positive but uncertain for fees
Auditor-level internal	Work experience; independence; CPE	Human capital, professional judgment, and ethical conduct	Positive direct effects
Firm-level context	Quality Control System	Risk assessment, supervision, review, consultation, monitoring, and remediation	Selective moderation

An economically adequate audit fee can support staffing, specialist input, consultation, and review. The resource argument predicts a positive relationship, although prior studies also warn that fee levels may capture complexity or economic dependence rather than quality itself (Kung et al., 2021; Novak and Knechel, 2023).

H3: Audit fees are positively associated with audit quality.

2.7. Auditor-level internal determinants

Experience improves the auditor's ability to recognize unusual patterns, calibrate risk assessments, and select responsive procedures. Client-specific and industry experience are also associated with audit effort and more informed engagement planning (Contessotto et al., 2021).

H4: Work experience is positively associated with audit quality.

Independence protects the auditor's willingness to report material misstatements and resist client pressure. Independence is not merely a formal declaration; it is a professional condition that allows evidence and standards, rather than client preference, to determine the audit conclusion (Carcello et al., 2020).

H5: Independence is positively associated with audit quality.

CPE updates technical competence and supports adaptation to revised standards, digital tools, complex estimates, and emerging business risks. Evidence from audit-firm transparency data indicates that relevant CPE is associated with

stronger audit outcomes, particularly outside the largest firms (Ocak et al., 2022).

H6: Continuing professional education is positively associated with audit quality.

2.8. Selective moderation by the quality control system

QCS can affect how each determinant is translated into engagement behavior. For third-party review, QCS may convert findings into remediation and prevent recurrence. For time budget pressure, supervision, consultation, workload monitoring, and escalation can protect essential procedures. For audit fees, acceptance and continuance policies can test whether the fee is sufficient without creating economic dependence. For experience and CPE, competence assignment and review can direct knowledge to high-risk areas. For independence, confirmations, conflict checks, consultation, and partner oversight can reinforce ethical safeguards.

However, the interaction is not assumed to be mechanically identical across all predictors. External review may overlap with QCS monitoring, and person-level capabilities may exert direct effects that are not materially changed by firm-level procedures. The six moderation hypotheses are therefore tested separately.

H7: QCS moderates the relationship between third-party review and audit quality.

H8: QCS weakens the negative relationship between time budget pressure and audit quality.

H9: QCS moderates the relationship between audit fees and audit quality.

H10: QCS strengthens the relationship between work experience and audit quality.

H11: QCS strengthens the relationship between independence and audit quality.

H12: QCS strengthens the relationship between continuing professional education and audit quality.

The integrated conceptual framework illustrating the relationships among the study constructs and the moderating role of QCS is presented in Fig. 1.

3. Methodology

3.1. Research design and sample

This study used a cross-sectional explanatory survey. The target population comprised 1,442 auditors working in public accounting firms. Data were collected through a structured questionnaire distributed electronically using Google Forms. A criterion-based sampling approach was used to ensure that respondents had direct audit responsibilities.

A total of 304 usable responses from auditors working in Medan, North Sumatra, were included in the analysis. The respondent eligibility criteria, typical years of service, and main audit responsibilities are summarized in Table 2.

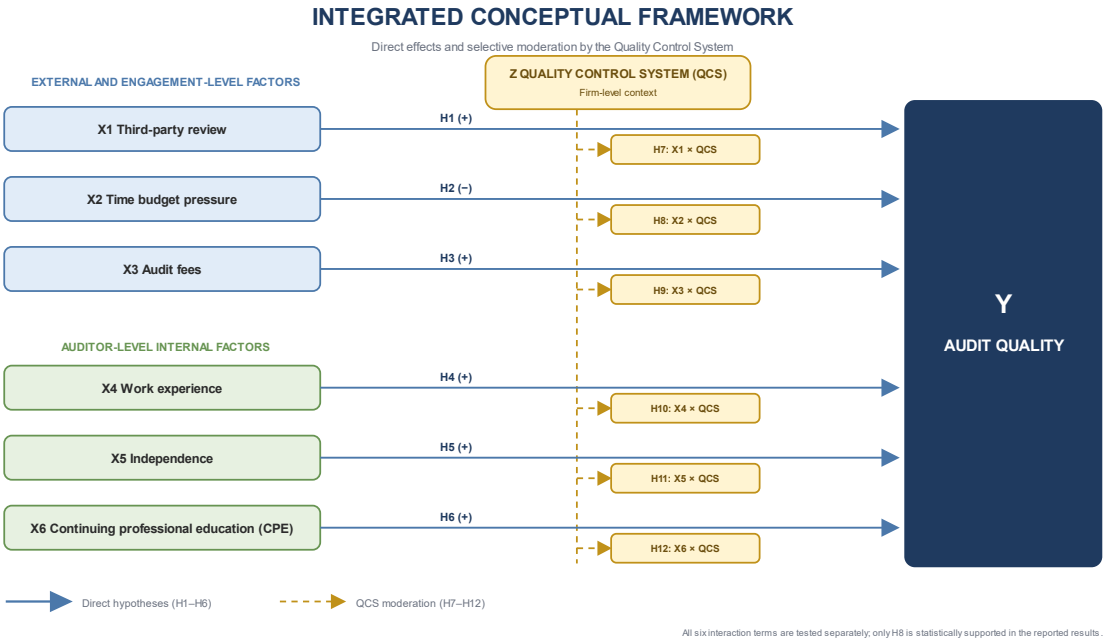


Fig. 1: Integrated conceptual framework

Table 2: Respondent eligibility and role criteria

Position	Typical years of service	Main audit responsibilities
Audit staff	1-3 years	Perform assigned procedures, verify ledger and supporting evidence, prepare working papers, and communicate exceptions to the senior auditor.
Senior auditor	3-6 years	Coordinate fieldwork, assess and document audit risks, review staff working papers, and communicate significant matters to managers and partners.
Audit manager	> 6 years	Plan and supervise engagements, manage client and partner communication, review significant judgments, and ensure completion and reporting quality.

3.2. Measures and analytical procedures

The questionnaire measured third-party review (X1), time budget pressure (X2), audit fees (X3), work experience (X4), independence (X5), CPE (X6), audit quality (Y), and QCS (Z). The abbreviation CPE is used consistently throughout the manuscript; the Indonesian term Pendidikan Profesional Berkelanjutan (PPL) refers to the same construct. All hypotheses were tested using partial least squares structural equation modeling because the model contains multiple latent constructs and six interaction terms (Hair et al., 2019). The analysis proceeded in two stages. First, the measurement model was assessed using indicator loadings, average variance extracted (AVE), Cronbach's alpha, and composite reliability. Second, the structural model was evaluated using standardized path coefficients, bootstrap t-statistics, p-values, and the coefficient of determination. Moderation was tested through product interaction terms: X1×Z, X2×Z, X3×Z, X4×Z, X5×Z, and X6×Z. A positive interaction on the time-pressure path indicates that QCS offsets part of the negative direct effect.

4. Results

4.1. Measurement model

Table 3 reports the measurement model. All constructs exceeded the conventional thresholds of 0.50 for AVE and 0.70 for Cronbach's alpha and composite reliability. Several indicators had loadings between 0.50 and 0.70. These indicators were retained only where the construct continued to meet AVE and reliability criteria, and the item represented a distinct element of the construct (Hair et al., 2019).

Table 3: Measurement model assessment

Item(s)	X1	X2	X3	X4	X5	X6	Y	Z
X1.1	0.923							
X1.2	0.926							
X1.3	0.924							
X1.4	0.940							
X1.5	0.916							
X2.1		0.783						
X2.10		0.734						
X2.11		0.741						
X2.12		0.765						
X2.2		0.707						
X2.3		0.696						
X2.4		0.683						
X2.5		0.847						
X2.6		0.774						
X2.7		0.800						
X2.8		0.723						
X2.9		0.836						
X3.1			0.941					
X3.2			0.949					
X3.3			0.912					
X3.4			0.940					
X4.1				0.842				
X4.2				0.551				
X4.3				0.733				
X4.4				0.824				
X4.5				0.649				
X4.6				0.868				
X5.1					0.850			
X5.2					0.949			
X5.3					0.896			
X5.4					0.919			
X5.5					0.928			
X5.6					0.937			
X6.1						0.880		
X6.2						0.945		
X6.3						0.930		
X6.4						0.904		
Y.1							0.904	
Y.2							0.971	
Y.3							0.932	
Y.4							0.963	
Y.5							0.967	
Y.6							0.902	
Y.7							0.969	
Y.8							0.964	
Y.9							0.976	
Z.1								0.737
Z.2								0.799
Z.3								0.803
Z.4								0.922
AVE	0.857	0.576	0.876	0.567	0.835	0.837	0.903	0.67
Cronbach's alpha	0.958	0.938	0.953	0.845	0.96	0.935	0.986	0.864
Composite reliability	0.968	0.942	0.966	0.885	0.968	0.954	0.988	0.889

X4.2 has a loading of 0.551. It is below the preferred 0.708 benchmark but above the minimum 0.50 threshold. It was retained because work experience still achieved AVE = 0.567 and composite reliability = 0.885, and because the item captures a non-redundant aspect of the construct. The result should nevertheless be interpreted cautiously. The previously reported rho_A value of 1.301 for QCS was an inadmissible estimate and is not interpreted; the revised table reports Cronbach's alpha and composite reliability, both of which are within acceptable ranges

4.2. Structural model

Based on Table 4, five of the six direct-effect hypotheses were supported. Third-party review, work experience, independence, and CPE were positively associated with audit quality, while time budget pressure was negatively associated with audit quality. Audit fees were negative but statistically non-significant, indicating that fee magnitude alone did not explain perceived audit quality in this sample. Based on Table 5, only H8 was supported. The positive X2×Z coefficient offsets part of the negative time-budget-pressure coefficient, meaning that a stronger QCS reduces, but does not necessarily eliminate, the quality risk associated with time pressure.

The remaining five interactions were not statistically significant. The result limits any claim that QCS is a universal moderator.

Table 4: Direct-effect hypothesis tests

Hypothesis	Path	β	SD	t	p	Decision
H1	Third-party review → audit quality	0.278	0.059	4.708	<0.001	Supported
H2	Time budget pressure → audit quality	-0.153	0.052	2.923	0.004	Supported
H3	Audit fees → audit quality	-0.053	0.049	1.078	0.282	Not supported
H4	Work experience → audit quality	0.243	0.061	3.956	<0.001	Supported
H5	Independence → audit quality	0.129	0.055	2.359	0.019	Supported
H6	CPE → audit quality	0.264	0.083	3.198	0.001	Supported

Table 5: Moderating-effect hypothesis tests

Hypothesis	Path	β	SD	t	p	Decision
H7	Third-party review × QCS → audit quality	-0.083	0.045	1.830	0.068	Not supported
H8	Time budget pressure × QCS → audit quality	0.112	0.035	3.156	0.002	Supported
H9	Audit fees × QCS → audit quality	-0.004	0.031	0.142	0.887	Not supported
H10	Work experience × QCS → audit quality	-0.013	0.015	0.853	0.394	Not supported
H11	Independence × QCS → audit quality	-0.010	0.021	0.504	0.614	Not supported
H12	CPE × QCS → audit quality	0.052	0.037	1.403	0.161	Not supported

5. Discussion

The positive third-party-review result is consistent with the disciplining and remediation functions of independent oversight. External review can make deficiencies visible, increase the cost of repeated non-compliance, and create a formal basis for corrective action (Elshandidy et al., 2021). The result should not be interpreted to mean that every inspection automatically improves quality; reviewer competence, independence, transparency, and follow-up remain important.

The negative time-budget-pressure coefficient supports the view that quality deteriorates when scheduled hours are misaligned with audit risk and complexity. This finding is consistent with evidence that workload intensity becomes damaging when actual hours exceed budgeted hours and with Indonesian evidence that supervision can reduce pressure-related quality loss (Hwang and Hong, 2022). The practical issue is therefore not the existence of a budget, but whether the budget can be challenged and revised when engagement conditions change.

Audit fees were not significantly associated with audit quality. This result is plausible because fees combine several economic meanings. A higher fee may finance greater effort, but it may also reflect client size, risk, complexity, first-year start-up costs, specialist use, or bargaining power (Carson et al., 2022; Novak and Knechel, 2023). Conversely, low fees may represent efficiency or strategic lowballing without necessarily producing lower quality (Kung et al., 2021). Fee adequacy and fee dependence may therefore be more informative than the absolute fee level. Work experience, independence, and CPE each had positive effects. The experience result supports the role of accumulated task knowledge in recognizing risk and selecting responsive procedures. The independence result confirms that professional objectivity remains a direct quality input rather than a purely administrative requirement. The CPE result is consistent with evidence that relevant learning is associated with better audit outcomes (Ocak et al., 2022). Together, these results show that formal systems cannot substitute for competent and ethically grounded auditors.

5.1. Selective moderating role of the quality control system

The significant moderation of time budget pressure provides the clearest evidence of how QCS operates. Time pressure is an engagement-level risk that a firm can directly address through staffing decisions, budget revision, consultation, milestone review, partner involvement, documentation controls, and escalation when planned hours are no longer realistic. QCS therefore supplies organizational resources and checkpoints at the same level where the pressure is created.

The five non-significant interactions are also informative. First, third-party review and QCS may be partly substitutive because external inspection often evaluates the firm's own quality-control arrangements; adding both mechanisms does not necessarily produce a multiplicative effect. Second, the non-significant fee interaction follows the absence of a direct fee effect: a formal system cannot convert an ambiguous price signal into quality without information about fee adequacy, engagement risk, and client dependence. Third, experience, independence, and CPE are measured at

the auditor level, whereas QCS operates at the firm level. Their direct effects may already be strong, or the cross-level interaction may require more granular firm-level data than a single-respondent survey provides.

Accordingly, the moderation results do not nullify the value of QCS. They delimit it. The system appears most effective where management can alter workflow, supervision, and resource allocation. It is less likely to change external regulatory pressure or to amplify personal capabilities automatically. This selective pattern is consistent with the risk-based and scalable logic of modern quality-management standards (Lee and Menon, 2026).

5.2. Theoretical contribution

This study contributes to audit-quality research in three ways. First, it replaces a fragmented collection of theories with a single multilevel architecture derived from the audit-quality framework. Agency, human-capital, and occupational-stress mechanisms are used only to explain specific links within that architecture. Second, it distinguishes auditor-level internal factors from external and engagement-level conditions, making the level of analysis explicit. Third, it shows that QCS is a selective boundary condition rather than a universal amplifier. The single significant interaction identifies the setting in which firm-level controls have the strongest behavioral leverage: deadline and workload risk.

5.3. Practical implications

Public accounting firms should translate these findings into specific controls. For time budgeting, engagement partners should document the basis of planned hours, compare budgeted and actual hours at defined milestones, and require formal approval when scope is compressed. An escalation rule should prevent unresolved time pressure from being managed through silent procedure reduction or unreported overtime.

External-review findings should be recorded in a remediation register that identifies the root cause, responsible owner, deadline, and evidence of closure. Repeated findings should trigger a firm-level response rather than isolated correction of the inspected file. For audit fees, acceptance and continuance procedures should assess fee adequacy relative to risk, staffing, specialist needs, and review hours; they should also monitor client-fee concentration and prohibit compensation arrangements linked to the audit outcome.

Experience and CPE should be managed through a competency matrix. Firms should assign personnel according to industry and task experience, use coaching and consultation for high-judgment areas, and evaluate training through post-course assessment and subsequent file quality rather than attendance hours alone. Independence safeguards should include conflict checks, annual and engagement-specific confirmations, consultation on threats, partner review, and documented safeguards.

For scalability, smaller firms may prioritize a limited set of high-leverage controls: partner supervision, independence confirmation, mandatory consultation for complex issues, completion checklists, and periodic cold-file review. Larger firms should add specialist networks, automated conflict and independence monitoring, thematic inspections, root-cause analysis, and formal remediation tracking. Useful indicators include overdue review points, repeated inspection findings, documentation rework, unresolved consultations, budget overruns, and training outcomes.

6. Conclusions

The evidence shows that audit quality in Indonesian public accounting firms is shaped by both personal capability and engagement context. Third-party review, work experience, independence, and CPE were positively associated with audit quality, while time budget pressure was negatively associated. Audit fees were not significant, suggesting that price is an incomplete proxy for effort or quality. Most importantly, QCS moderated only the time-pressure relationship. The system therefore acts as a targeted organizational buffer where the firm can change staffing, workflow, supervision, and review, but it does not automatically strengthen every external or auditor-level determinant.

The principal implication is conceptual as well as managerial. Audit firms should not evaluate QCS by the number of written policies or assume that one system component improves all aspects of quality. Effectiveness depends on whether the system identifies a specific quality risk, directs an appropriate response, and verifies remediation. The findings support a risk-based quality-management approach and caution against broad claims based solely on one significant interaction.

The following limitations can be summarized for this study:

- The study is cross-sectional; the coefficients represent associations at one point in time and do not establish causal direction.
- All variables were collected from the same questionnaire, creating possible common-method variance and social-desirability bias, particularly for independence and audit quality.
- The analyzed respondents were drawn from public accounting firms in Medan, North Sumatra. Generalization to other Indonesian regions, national networks, or other regulatory environments should therefore be cautious.
- Criterion-based sampling and electronic distribution may underrepresent auditors with limited access, lower response propensity, or different workload conditions.
- Audit quality is measured through auditor perceptions rather than objective outcomes such

as inspection deficiencies, restatements, audit adjustments, going-concern reporting, or archival engagement data.
- The model combines individual-level responses with a firm-level QCS construct without explicitly modeling auditors nested within firms. Multilevel analysis may produce different cross-level interaction estimates.
- The marginal loading of X4.2 and the inadmissible rho_A estimate previously observed for QCS indicate that future studies should refine the measurement items and revalidate the construct using an independent sample.
- Six moderation paths were estimated, but only one was significant. Future research should increase statistical power, report effect sizes and predictive assessment, and test more precise mechanisms such as budget revision authority, partner involvement, monitoring quality, remediation effectiveness, and firm size.

Future studies should combine survey data with inspection reports, audit-file reviews, time records, fee dependence measures, and interviews. Longitudinal and multilevel designs would allow researchers to examine whether improvements in quality-management systems precede changes in audit outcomes and whether the moderating effect differs between small, medium, and large firms.

List of abbreviations

AVE	Average variance extracted
CPE	Continuing professional education
IAASB	International Auditing and Assurance Standards Board
IES	International Education Standard
ISQM	International Standard on Quality Management
PPL	Pendidikan profesional berkelanjutan
PCAOB	Public Company Accounting Oversight Board
QC	Quality control
QCS	Quality control system
SD	Standard deviation
SMM	Standar manajemen mutu

Acknowledgment

The authors gratefully acknowledge Universitas Sumatera Utara, particularly the Faculty of Economics and Business, for its institutional support in conducting this study.

Compliance with ethical standards

Ethical considerations

Ethical approval for this study was obtained from the Research Ethics Committee (KEPFEB) of the Faculty of Economics and Business, Universitas Sumatera Utara (Approval No. KEP-FEB/XI/2026/EC/021). Participation was voluntary, and informed consent was obtained from all participants prior to data collection. All responses were collected anonymously, and the data were kept confidential in accordance with institutional and international ethical guidelines.

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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