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QUALITY MANAGEMENT SYSTEM AND AUDIT QUALITY: THE MODERATING EFFECT OF INDEPENDENT AUDIT INSPECTION IN CHINA

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ABSTRACT
Research aim: This study examines the effect of quality management systems (QMS), in terms of leadership responsibility, relevant ethical requirements, human resource, engagement performance, and monitoring, on audit quality (AQ). Also, this study examines whether independent audit inspection moderates the relationship between QMS and AQ.
Design/ Methodology/ Approach: A total of 414 external auditors working in Chinese accounting firms responded to the online survey questionnaires.
Research finding: By using SmartPLS as a tool for data analysis, the results showed that all elements of the quality QMS have positive effect on AQ. However, it failed to establish the moderating effect of an independent audit inspection on QMS and AQ.
Theoretical contribution/ Originality: This study contributes to elucidating the significance of QMS in promoting AQ, as well as shedding light on the ongoing debate regarding the impact of independent audit inspection on AQ.
Practitioner/ Policy Implication: Public accounting firms and regulators should focus on improving QMS to ensure high audit quality.
Keyword: Audit quality, Quality management system, Audit inspection, Engagement performance, Ethics
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1. Introduction

Audit quality (AQ) remains a major concern in corporate financial reporting due to recurring business failures (e.g., Kang De Xin and NMC Health Care). Thus, the establishment of independent audit oversight bodies like the Public Company Accounting Oversight Board (PCAOB) and Audit Quality Review (AQR) reflects a commitment to enhancing the quality of audits and financial reporting. These organisations play an important role in conducting audit work examinations and reviews to ensure compliance with standards and regulations and to identify opportunities for improvement. Additionally, the publication of new and revised

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auditing standards contributes to the continuous development of best practices in auditing, aiming to prevent auditing failures.

In 2004, the International Auditing and Assurance Standards Board (IAASB) issued the International Standard Quality Control 1 (ISQC1) and revised and issued International Auditing Standard No. 220 (ISA220) – Quality Control of Financial Statements to provide guidelines for quality management systems (QMS) for financial statement audits and reviews. The QMS provides recommendations for accounting firms to follow regarding firm-wide policies and procedures, which promote consistency, transparency, and continuous improvement in the quality of accounting firms' assurance services. It stresses leadership duties, engagement performance, monitoring methods, and corrective actions to address any discovered weaknesses in quality management. An updated set of quality management standards, including the International Standards on Quality Management (ISQM) 1 and 2, and International Standards Auditing (ISA 220), were introduced by the IAASB in 2020. These standards set out more stringent requirements for QMS that accounting firms must adhere to, and they will go into effect in December 2022.

In China, the Chinese Institute of Certified Public Accountants (CICPA) is responsible for performing annual inspections of the qualifications and practices of certified public accountants (CPAs). The CICPA's scope of work also encompasses accounting firms' compliance with the Chinese Standard on Quality Control 5101 (CSQC5101) and the Chinese Certified Public Accountants' Auditing Standards No. 112 – Quality Control of Historical Financial Information, which mandate the use of QMS in public practice. Although all accounting firms in China are required to implement QMS, few studies have determined the extent to which QMS plays a critical role in promoting high AQ. In addition, a series of corporate failures in China, such as Luckin Coffee, had raised public concerns regarding the quality of audit performance and the role of the CICPA in promoting AQ.

Literature often ties AQ to auditors' adherence to auditing standards during the audit performance (Krishnan & Schauer, 2001), which would enhance auditors' ability to detect and report material misstatements (DeAngelo, 1981; Khudhair, Al-Zubaidi & Raji 2019). Previous research on AQ identify several factors affecting AQ such as attributes of accounting firms (such as audit firm size and audit fees) and auditors (such as attentiveness and knowledge) (Jiang, Wang & Wang, 2019), independent audit inspection (Sulaiman, 2018), and audit process (such as audit planning and risk assessments) (Sulaiman, Shahimi & Nashtar Singh 2019). Nonetheless, only a few studies examine the influence of QMS on AQ (DeFond & Zhang, 2014; Lennox & Wu, 2018). Moreover, most studies examined QMS on a single element such as ethical culture (Barrainkua & Pike, 2018), leadership responsibility (Mao, Ettredge & Stone, 2020), education and

training (Dresdner & Fischer, 2020), and engagement performance and monitoring (Aobdia, 2019). Therefore, examining various elements of QMS will provide a more comprehensive analysis of QMS effects on AQ. Furthermore, AQ research in China was largely reliant on panel data of public accounting companies, and there was lack of empirical study in the country which directly gathered the perceptions of auditors concerning factors affecting AQ (Sun, 2017). External auditors are regarded as the primary line of defence for providing reasonable assurance that the financial statements are free from material misstatement, making their assessment of AQ crucial (Mat Ridzuan et al., 2022). Similarly, while previous research examined the effects of audit inspection on AQ, research that examined the effect of independent audit inspections on audit firms' QMS was limited. Hence, this study is imperative to offer insights concerning the effects of QMS and audit inspection on AQ in China's accounting firms.

The objective of this study is to determine if QMS, in terms of leadership responsibility (LR), relevant ethical requirements (ER), human resources (HR), engagement performance (EP), and monitoring, affects AQ. Additionally, this study examines whether independent audit inspection moderates the relationship between QMS and AQ. Subsequently, two research questions were formulated: (i) What are the effects of QMS - leadership responsibility (LR), relevant ethical requirements (ER), human resources (HR), engagement performance (EP), and monitoring on AQ? (ii) Does independent audit inspection moderate the relationship between QMS and AQ?

This study is structured into six sections. The next section provides the study's background. Section 3 discusses the literature review and development of hypotheses. Section 4 explains the research methodology, while Section 5 presents the findings. The final section concludes the paper.

2. Background of the Study

China has become one of the world's fastest-growing economies as a result of Deng Xiaoping's 1978 economic reforms, which allowed foreign investment in domestic companies and facilitated open economic policies (Wang et al., 2015; Macve, 2020). As a result, many foreign companies invested their capital in the country, necessitating the need for external auditing services and creating exponential growth in the audit profession in China (Macve, 2020). The Ministry of Finance (MOF) established CICPA on November 25, 1988, and is in charge of regulating the auditing profession in China (Wang et al., 2015; CICPA, 2018).

The CICPA's primary duty is to carry out an annual independent audit inspection to evaluate the quality of the audit work performed by accounting firms. The inspections' scope encompasses a number of areas, such as adherence to the ISQM1 (also known as the Chinese Standard on Quality Control – 5101 (CSQC5101)) elements, which are leadership responsibility for quality in the firm,

ethical requirements, acceptance and continuation of client relationships and specific engagements, human resources, engagement, and monitoring (ISSAB,

2020; MOF, 2019). The requirements for quality management are explicitly stated in this standard and apply to the execution of financial statement audits, reviews, other assurance, and related service operations performed by the accounting firms. This study examines the effects of certain ISQM1 components on AQ, as discussed in the following section.

3. Literature Review and Hypotheses Development

3.1. Audit quality

AQ is crucial in ensuring high-quality financial reports are attained for investors sound investment decisions (IAASB, 2020; Egiyi, 2022). In the past, AQ has been defined in numerous ways that include the ability of the auditor to detect and report material misstatements (DeAngelo, 1981), auditors' performance in conformance with applicable auditing and ethics standards (DeFond & Zhang, 2014; MOF, 2019), the external auditors' level of challenge to the management (Coppage & Shastri, 2014) and meeting aspects of service quality expected by the audit clients (Sulaiman, 2018). In summary, AQ is a multifaceted concept that encompasses different dimensions. Ensuring AQ involves a combination of accurately identifying financial misstatements, adhering to professional standards and ethics, engaging in critical interactions with management, and meeting the expectations of audit clients. All these aspects contribute to producing reliable financial reports that aid investors in making sound investment decisions that can be affected by various factors, as discussed in the subsequent sections.

3.2 Quality management system

According to Dahlgaard-Park (2018), quality management refers to an organisation's methods for ensuring proper work flow, better service delivery, and the creation of high-quality goods or services. Public accounting firms are required to implement a firm-wide QMS related to quality in their policies, procedures, and processes in order to ensure the delivery of high-quality services. This study examines the effects of selected QMS (leadership responsibility, relevant ethical requirements, human resource, engagement performance, and monitoring) on the audit service quality offered by public accounting firms, as described in the following section.

3.3 Leadership responsibility and audit quality

Leadership is an essential tool for motivating, directing, and inspiring employees to excel in their contributions to achieving the overarching goals of organisations. Good organisational leaders are responsible for setting an appropriate

organisational tone as well as defining job roles, procedures, and employee performance targets. 'Tone at the top' refers to the leadership responsibility of top management to create an ethical and honest environment that can shape the organizational culture and values, establishing the overall ethical framework within which business activities are conducted (PCAOB, 2008; IFAC, 2011; CAQ, 2014). This leadership responsibility is particularly relevant in the context of auditing. The behaviour and actions of every employee within the accounting firms are greatly influenced by this 'tone at the top'.

Schein (2010) shows, primarily through the use of role modelling, that managers' actions and behaviours have a significant impact on other employees' ethical behaviour. Similarly, responsible leaders are more inclined to establish a culture of quality control by prioritising professionalism, encouraging ethical decision-making, and facilitating learning through systematic approaches, the integration of specialised knowledge, and interpersonal interactions among auditors (Alberti et al., 2022). It is anticipated that responsible leaders within audit firms would effectively implement robust engagement quality procedures, thereby impacting audit performance and ensuring the achievement of high AQ standards (Esparza et al., 2022). Accordingly, this study hypothesises:

H1 There is a positive association between good leadership responsibility and AQ

3.4 Ethical requirements and audit quality

Ethics can be understood as the practical application of morality (Koehler, 2003). Moral principles encompass responsibilities, norms, traditions, and commitments that are acquired through institutions, society or religion (Paine, 2003). In the auditing setting, ethical requirements related to independence, confidentiality, privacy and data protection are established as one of the quality management principles to ensure high AQ (Arowoshegbe et al., 2017; Alberti et al., 2022). Earlier research indicates that work environments fostering ethical behaviour and enforcing ethical standards correlate with fewer instances of AQ shortcomings (Svanberg & Öhman, 2013). This study accentuates the potential impact of strong ethical audit requirements in significantly elevating AQ. Therefore, the following hypothesis was formulated:

H2 There is a positive association between strong ethical requirements and AQ

3.5 Human resources and audit quality

According to Armstrong (2006), 'human resource management' refers to all operations involving the hiring, managing, and directing of personnel within organisations. In particular, it entails talent management in several areas, such as

recruitment, retention, socialisation, training, education, promotions, and rewards (Brierley & Gwilliam, 2003). Effective human resources are crucial in the context of ISQC1 for maintaining high AQ within audit firms (Cheng, Liu & Chien 2009; IFAC, 2011).

Favourable rewards, compensation plans, and educational support were found to positively correlate with AQ by Kang et al. (2017). Correspondingly, Dresdner and Fischer (2020) demonstrate that a well-trained and competent audit workforce achieved through continuous training and education positively influences AQ. Previous research has underscored the critical impact of remuneration and incentives on both individual and corporate performance. For instance, Ernstberger et al. (2020) focus on accounting firms, revealing that the size of profit-sharing pools and the ratio of variable compensation to total compensation directly affect AQ, highlighting the link between compensation policies and AQ. The aforementioned arguments led to the following hypothesis:

H3 There is a positive association between effective human resources and AQ

3.6 Engagement performance and audit quality

According to Anitha (2014), employee performance refers to successes that are consistent with organisational goals. In auditing, good engagement performance encompasses diverse tasks like planning, supervision, review, consultation, and discussion within the audit process (IAASB, 2015; MOF, 2019). Well-structured engagements, involving team assignment, risk assessment, and reliance on external specialists, are pivotal for ensuring high AQ (IFAC, 2011; Christensen et al., 2016). Consultations, particularly in high-risk audit engagements, enable better risk assessment and reduce audit risks (Dennis & Johnstone, 2016). Also, consultations are mandated in auditing standards, particularly for complex or contentious accounting and/or auditing matters, to ensure accurate financial statement opinions (Maroun & Atkins, 2014; Tapang et al., 2020). Additionally, engagement performance through quality control reviews verifies auditors' work, including responses to significant risks and judgments, enhancing AQ. Studies have demonstrated that audit engagement quality reviews, such as concurring partner reviews, improve the competence and independence of reviewed partners (Matsumura & Tucker, 1995; Tucker & Matsumura, 1997; Saha & Roy, 2017). The above discussion led to the development of the following hypothesis:

H4 There is a positive association between good engagement performance and AQ

3.7 Monitoring and audit quality

Hellawell (1991) defines monitoring as routine assessments of an individual's performance to determine conformity with a predetermined standard with the intention of minimising variance. A good monitoring process is considered part of a quality management initiative that aims to find and fix problems that could result in work performance flaws. One of the most important control mechanisms in place within auditing firms to guarantee high AQ is monitoring (CAQ, 2014). Internal monitoring in accounting firms refers to the control system that includes a variety of monitoring programs such as consultations, documentations, standards and policies, procedures, and reports for disseminating monitoring results that are used to ensure high AQ (Huddart & Liang, 2005; Bedard et al., 2008). Aobdia (2019) shows that monitoring processes incorporated into the quality control systems in accounting firms have a positive correlation with auditors' efforts to improve AQ (Aobdia, 2020). This study therefore proposes the following hypothesis:

H5 There is a positive association between good monitoring mechanisms and AQ

3.8 Independent Audit Inspections and Audit Quality

Regulators play a critical role in ensuring high AQ by ensuring the effectiveness of the audit firm's QMS. Independent inspection by a regulator capable of highlighting the nature and areas of weakness at the firm and engagement levels that can be detrimental to AQ (Logie & Maroun, 2021). Liu (2016) finds that clients' high-financial reporting (reduction in discretionary accruals) increases after CICPA independent audit inspection, implying AQ improvement. Furthermore, increased enforcement, such as tougher punitive disciplinary actions by regulators, leads to an improvement in AQ (Feng et al., 2022). In the context of QMS and AQ, this study predicted that the presence of the role of regulator would increase the impact of each QMS element on AQ. As such, this study hypothesises:

H6a The role of CICPA moderates the association between the leadership responsibility in QMS and AQ
H6b The role of CICPA moderates the association between the ethical requirements in QMS and AQ
H6c The role of CICPA moderates the association between the human resource in QMS and AQ
H6d The role of CICPA moderates the association between the engagement performance in QMS and AQ

H6e The role of CICPA moderates the association between the monitoring in QMS and AQ

4. Research Methodology

4.1. Sample Size, Research Instrument and Measurement

Utilising a survey, the relationships between QMS elements and AQ are investigated. This research aimed to comprehend the impact of the quality management system (QMS) on audit quality (AQ) in terms of leadership responsibility, relevant ethical requirements, human resource, engagement performance, and monitoring. This study also examined, from the perspective of external auditors, whether independent audit inspection moderates the relationship between QMS and AQ among Chinese accounting firms. To accomplish this objective, the population of this study is restricted to external auditors working in Chinese accounting firms. The unit of analysis denotes the level of aggregation of the data collected prior to data analysis (Sekaran & Bougie, 2016). Therefore, it could be organisations, groups, or individuals (Collis & Hussey, 2009).

The survey questionnaire was distributed to a randomly selected group of auditors from different levels of Chinese accounting firms, which encompassed the Big Four firms, large firms, medium firms, and small firms. This selection process adhered to the guidelines outlined in the Notice on Issuing the Regulations on the Classification Standards in China. According to the MOF (2019), there exists a classification system for audit firms based on the number of practitioners. Large firms are defined as those with more than 300 practitioners, medium-sized organisations are categorised as having 100-300 practitioners, and small firms are characterised by having less than 100 practitioners. In January 2021, a survey questionnaire was disseminated to a sample of 1,000 audit practitioners across China.

The questionnaire is organised into seven sections: respondents' perceptions of QMS aspects (LR, ER, HR, EP and monitoring affecting AQ), as well as demographic information. Appendix 1 illustrates detailed information related to the measurements of the variables of this study.

This study focuses on leadership responsibility from the perspective of the tone at the top, and respondents were asked to indicate how their organisation's leaders and employees viewed their own organisation's leadership responsibility. Relevant ethical requirements were measured with 14 questions pertaining to pertinent ethical requirements from two dimensions: i) independence; and ii) confidentiality, privacy, and data protection. Seventeen items pertaining to human resources were utilised and categorised into three dimensions: i) recruitment and retention; ii) continuing training and education; and iii) managing and rewarding compliance.

Engagement performance was measured based on 13 items. The items covered three dimensions of engagement: i) planning; ii) consultation; and iii) quality control reviewing. Monitoring was measured by asking respondents to indicate their perceptions regarding the monitoring process of their firms. The moderating variable was role of regulator which was measured from three dimensions: i) responsibilities in audit practice and quality review; ii) review plan; and iii) inspectors and advisory experts.

The respondents were given 16 statements regarding the regulatory role of the CICPA in relation to the QMS inspection of accounting firms. On a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree', responders are required to identify their personal opinion regarding the items. The measurements of variables are summarised in Table 1.

Table 1. Measurement of Variables

Constructs	Sources	Number of items
Audit quality	Knechel et.al (2013); DeFond et al. (2014); Christensen et al. (2016); Sutton and Lampe (1991); Coppage and Shastri (2014); Mardijuwono and Subianto (2018); Carcello et al. (1992); Francis (2004); DeAngelo (1981); Palmrose (1988)	10
Leadership responsibility	IFAC (2011); IAASB (2015); Deloitte (2019)	7
Relevant ethical requirements	Saha and Roy (2017); IAASB (2015); IFAC (2011); PWC (2019)	14
Human resource	Saha and Roy (2017); IAASB (2015); IFAC (2011); PWC (2019)	17
Engagement performance	Saha and Roy (2017); IAASB (2015); IFAC (2011); PWC (2019); Deloitte (2019)	13
Monitoring	IFAC (2011); PWC (2019)	8
Independent audit inspection	CICPA (2014)	16

4.2. Data collection and analysis

Utilising an online survey and pre-testing the questionnaire with responses from seven academics and three accounting firm practitioners between December 2020 and January 2021. The questionnaire was modified in response to the results of the pre-test to ensure that it was valid and easily understood by prospective respondents. The final version of the questionnaire was sent to respondents in January 2021, and 414 responses were received by the end of February 2021, for a 41.4% response rate. The response rate was adequate within the auditing setting. The final number of questionnaires utilised in this study was 414. Table 2 outlines the demographics of the respondents. SmartPLS was used to analyse

the data in two stages: measurement model and structural model. All 414 responses met PLS-SEM standards and fit Cohen's model (1992).

Table 2. Demographic Information

Demographic Information	Categories	Frequency (n)	Percent (%)
Gender	Male	179	43.2
	Female	235	56.8
Age	20-30	216	52.2
	31-40	125	30.2
	41-50	54	13.0
	51-60	19	3.7
Working Experience	1-3	155	37.4
	4-6	144	34.8
	7-9	63	15.2
	10-15	41	9.9
	Over 15	11	2.7
Educational Level	Bachelor Degree	307	74.2
	Master Degree	79	19.1
	Doctoral Degree	23	5.6
	Others	5	1.2
Current Position	Audit Associate	158	38.2
	Audit Senior Associate	150	36.2
	Audit Manager	71	17.1
	Audit Senior	22	5.3
	Audit Partner	13	3.1
Types of Audit Firm	Big Four Firm	26	6.3
	Big Tier Firm	60	14.5
	Medium Tier Firm	108	26.1
	Small Tier Firm	220	53.1
Professional Qualification	TA	217	52.4
	CFA	101	24.4
	CIMA	63	15.2
	CPA	21	5.1
	ACCA	4	1.0
	Others	8	1.9

5. Results and Discussion

5.1. Reliability and validity analysis

Table 4 presents the outer loading, Cronbach's alpha, composite reliability (CR) and average variance extracted (AVE) in the measurement model. Convergent validity could be acceptable when the AVE was over than 0.50 (Hair et al., 2019) or the AVE was around 0.50, but CR was much higher than 0.60 (Fornell & Larcker, 1981). In this study, the AVE is found to be slightly below 0.5 but still in close proximity to 0.5, and the construct reliability (CR) exceeds the threshold of 0.6; thus, it can be inferred that there exists a satisfactory level of internal consistency that is aligned with prior research by Lam (2012) and Yin (2018).

As seen in Table 4, the values for the reliability for both Cronbach's alpha (0.859) and composite reliability (0.887) signal a satisfactory level of reliability of the constructs, as they are both above the minimum threshold of 0.7 (Hair, 2016). HTMT values are acceptable as recommended by Hair (2016) (see Table 3). Thus, it can be concluded that the factor loading is valid, and overall, the analysis of reliability and validity shows a satisfactory score.

Table 3: Discriminant Validity

	AQ	CICPA	EP	ER	HR	LR	M
AQ							
CICPA	0.894						
EP	0.773	0.795					
ER	0.832	0.843	0.737				
HR	0.851	0.829	0.821	0.878			
LR	0.709	0.691	0.588	0.769	0.685		
M	0.836	0.897	0.722	0.684	0.785	0.665	

Table 4. Loading Factor, Cronbach's Alpha, Composite Reliability and AVE

Latent variable	Item	Loading factor
AQ (Cronbach alpha = 0.859, Composite reliability = 0.887, AVE = 0.441)		
AQ1	The audit is carried out in accordance with auditing standards.	0.659
AQ2	The audit is carried out in accordance with ethical standards.	0.699
AQ3	The audit is carried out in accordance with quality control standards (ISQC1).	0.673
AQ4	The auditor satisfies the audit client's expectations.	0.643
AQ5	The audit is valued by the audit client.	0.643
AQ6	The auditor provides good value for money to the audit client.	0.706
AQ7	The auditor reports the correct audit opinion on the financial statements.	0.671
AQ8	The auditor demonstrates an appropriate level of challenge to the management of the audit client.	0.674
AQ9	The auditor is technically competent.	0.649
AQ10	The auditor is independent.	0.621
CICPA (Cronbach alpha = 0.887, Composite reliability = 0.905, AVE = 0.425)		
CICPA1	CICPA is formulating professional regulatory rules and taking disciplinary measures against those with non-compliant practices.	0.710
CICPA2	CICPA is supporting audit members to comply with the laws in conducting their engagements.	0.695
CICPA3	CICPA is responsible for setting standards and policies of practice quality review on accounting firms.	0.670
CICPA4	CICPA is in charge of organizing the quality review on listed accounting firms.	0.650
CICPA5	The annual review plan of the CICPA specifies the requirements of the review.	0.674
CICPA6	In the review plan, CICPA considers audit engagements that might have high audit risks.	0.627
CICPA7	CICPA considers priority of inspecting the firms that exists disagreements among the partners which might affect the practice quality of the firms.	0.612
CICPA9	In the review plan, CICPA considers priority of the firms that make vicious and defamatory statements about their peers and damage their peers' interests.	0.602
CICPA10	In the review plan, CICPA considers priority of the firms that receive complaints and have problems reported by others.	0.621
CICPA11	In the review plan, CICPA considers priority of the firms that the fees charged by the firms violate the Practice Fee Charge Management Rules.	0.633
CICPA14	The CICPA review group is made up of more than 3 inspectors including a group leader.	0.651
CICPA15	The inspectors conduct the practical quality review within the scope of authorization of the CICPA.	0.654
CICPA16	The inspectors are selected from the CPAs and CICPA staff with vast relevant work experience.	0.663
EP (Cronbach alpha = 0.803, Composite reliability = 0.856, AVE = 0.460)		
EP2	Our risk assessment begins in the planning phase of the audit and continues through the issuance of our report.	0.736
EP4	In our audit plan, more resources and a greater number of engagement team members are allocated to high-risk areas.	0.655
EP6	The engagement team is briefed in order to understand each team member's respective objectives.	0.640
EP7	My firm maintains a memorandum of the audit strategy, completion of audit program, audit completion checklist as a part of the planning process.	0.598
EP8	My firm takes appropriate consultation on difficult or contentious matters.	0.681
EP10	Consultations are documented and agreed by both the individual seeking consultation and the individual providing consultation.	0.722
EP12	Our engagement partners resolve all issues raised by the engagement quality control reviewer.	0.703
ER (Cronbach alpha = 0.729, Composite reliability = 0.822, AVE = 0.480)		
ER3	All members in my firm have independence in appearance of our assurance clients.	0.705
ER9	My firm does not disclose any client information to third parties without proper and specific authority.	0.718
ER10	My firm does not use any client information for personal advantage of the professional accountant or third parties.	0.690
ER11	Client information obtained are used only for the purpose for which it was collected.	0.686
ER14	My firm requires the use of industry-standard technology designed protect this information from unauthorized access or inappropriate use.	0.665

Table 4. Loading Factor, Cronbach's Alpha, Composite Reliability and AVE (cont'd)

Latent variable	Item	Loading factor
HR (Cronbach alpha = 0.875, Composite reliability = 0.897, AVE = 0.421)		
HR1	In my firm, there is a detailed expectation of engagement requirements over the course of each calendar period in order to identify peak periods and potential resources.	0.677
HR2	My firm follows standard job interview procedures, including documentation of the process.	0.645
HR3	My firm maintains requirements of qualifications for entry.	0.654
HR4	My firm ensures sufficient personnel with the commitment to ethical principles.	0.652
HR7	My firm provides training to new members of the firm to make them conversant with the quality control procedure.	0.673
HR8	My firm considers establishing a probationary period for all new personnel.	0.636
HR10	My firm requires our audit professionals to attend training courses that integrate auditing and accounting concepts.	0.635
HR12	My firm uses performance appraisals to encourage personnel to continue their professional development.	0.628
HR13	My firm uses performance appraisal to reinforce good behavior and performance.	0.653
HR14	Performance appraisal in my firm considers performance on various engagements from feedback of a variety of supervisors.	0.623
HR16	Performance appraisal in my firm evaluates the personnel's goal setting.	0.619
HR17	Performance appraisal in my firm evaluates the personnel's opportunities for career promotion.	0.686
LR (Cronbach alpha = 0.733, Composite reliability = 0.818, AVE = 0.428)		
LR1	The partners in my firm decide on all key matters regarding the firm professional practice.	0.640
LR2	The partners in my firm are responsible for leading and promoting a quality control culture.	0.613
LR3	The partners in my firm are responsible for providing and maintaining the firms' quality control manual.	0.673
LR5	The partners in my firm are responsible for determining the firm's operating and reporting structure.	0.664
LR6	The partners in my firm do not consider the commercial considerations override management for quality.	0.619
LR7	The tone at the top in my firm is consistently honest and clear.	0.712
M (Cronbach alpha = 0.811, Composite reliability = 0.858, AVE = 0.430)		
M1	The monitoring program in my firm determines of whether sufficient consultation has taken place on difficult issues.	0.688
M2	The monitoring program in my firm determines there is sufficient documentation applicable to the work performed.	0.641
M3	The monitoring program in my firm assesses of whether the firm's quality control policies and procedures have been appropriately applied.	0.658
M4	In my firm, monitoring program primarily focuses on the implementation of new standards and policies, audit methodology enhancements, and matters noted during inspections cycles.	0.644
M5	My firm reports to all the partners and staff on the results of monitoring.	0.613
M6	In my firm, the monitoring report includes a detailed description of the monitoring process performed.	0.676
M7	In my firm, the monitoring report includes the conclusions drawn from the monitoring procedures.	0.633
M8	In my firm, the monitoring report includes the deficiencies and the actions taken, together with any further recommended actions.	0.691

5.2. Structural model and hypotheses testing analysis

On the effects of QMS (LR, ER, HR, EP, and monitoring) on AQ, Table 5 shows that none of the VIF values of any of the variables exceed 5, indicating there is no collinearity problem in this structural model. The R-squared is a predictive accuracy measure of the model, and represents the exogenous combined effect of variable on the endogenous variables. The results indicate that R^2 is over 0.5 (R^2 = 0.706, R^2 adjusted = 0.698), meaning that the predictive capacity is established (see Figure 1). Based on Figure 1 and Table 6, H1 is supported, as strength of leadership responsibility has a significant positive relationship with AQ at the 5% significance level, with the coefficient for this path being 0.082 (t = 2.077, p-value = 0.038). Thus, strength of leadership responsibility significantly affects AQ. Additionally, this conclusion is compatible with earlier assumptions and the result was consistent with past studies, indicating that an effective leader has a greater likelihood of achieving organisational goals and tasks (Jamaludin, 2011). This analysis also corroborates Cheon et al. (2017), whereby lack of leadership accountability for AQ was significantly associated with lower AQ inside an audit firm.

Table 5. Test of the Inner VIF Values

Variable	VIF
EP	2.289
ER	2.690
HR	3.356
LR	1.707
M	2.696

H2 is supported, as ER shows a significant positive relationship with AQ. The results of the path coefficients analysis showed that the ER was positively and significantly related to AQ (β = 0.105, t = 2.209, p-value = 0.028), indicating that this result was consistent with earlier expectations. The attributes for ER consisted of independence and confidentiality, the result for the association between ER, and thus AQ was consistent with prior research finding that the firms with ethical codes would increase AQ (Alberti et al., 2022) and application of code of ethics within the context of ISQC1 led to a positive impact on the quality of judgement made by the professional accountants (Pflugrath, Martinov-Bennie & Chen, 2007). With regard to the attribute of independence in ER the finding was also consistent with literature which showed the effect of auditor independence and AQ (Dresdner & Fischer 2020).

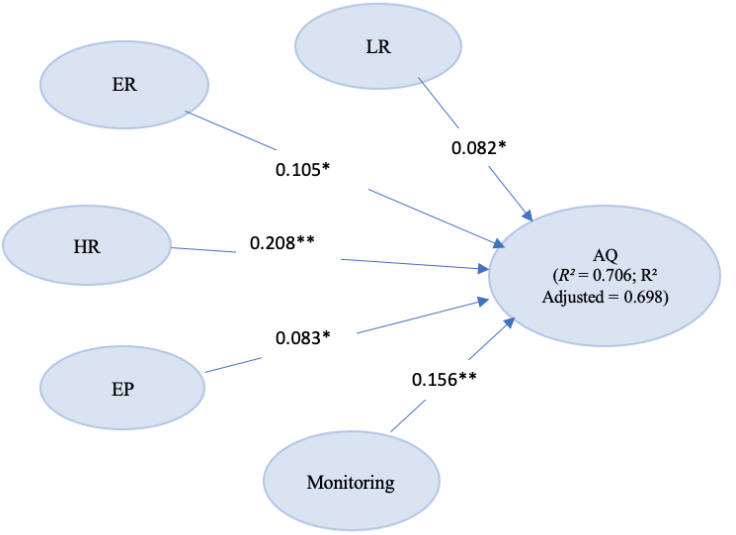
H3 is supported, as HR has a significant positive relationship with AQ. The results of the path coefficients analysis showed that HR was positively and significantly related to AQ (β = 0.208, t = 3.508, p-value = 0.000), indicating that this result was consistent with earlier expectations. Therefore, as the attributes for HR have been classified as recruitment and retention, continuing training and education as well as managing and rewarding compliance, the result was

consistent with prior literature finding that there was a positive relation between the competence of the auditors and AQ (Andreinald, Prayoga & Simorangkir, 2020). This study was also consistent with the compensation and rewarding influenced individual performance and firm performance (Banker et al., 2013). Therefore, this result corroborates Kang et al. (2017) who finds positive association between investment in HR and AQ.

H4 is supported, as engagement performance (EP) is positively associated with AQ. The path coefficients study revealed a positive and significant relation between engagement performance (EP) and AQ (β = 0.083, t = 1.970, p-value = 0.049), which is consistent with earlier assumptions. The findings are consistent with previous research, indicating that consultation or conversation throughout the engagement had substantial impact on AQ (Tapang et al., 2020).

H5 states that there is positive association between monitoring mechanism and AQ. The results of the path coefficients analysis showed that monitoring was positively and significantly related to AQ (β = 0.156, t = 3.286, p-value = 0.001), indicating that this result was consistent with earlier expectations. Therefore, this result was consistent with Huang et al. (2018) on monitoring mechanisms impacting risk management strategies, as well as Aobdia (2020) on incorporating monitoring processes into QMS to increase audit effort and AQ.

Figure 1. PLS Model with Significant Path Coefficients



Note: **Significant at 1% (one-tailed); * Significant at 5% (one-tailed)

Overall, the results show that the first five hypotheses of the main effect structural model are all tenable.

5.3. Assessment of the Moderating Effect of Role of Regulators (CICPA)

On whether independent audit inspection moderates the relationship between QMS and AQ, this study adopts role of regulators (i.e., CICPA) as a moderating variable to analyse the role it has in influencing the relationship between QMS and AQ. Whether the role of CICPA has moderating effects on the main structure model is examined. Moderation analysis was performed to evaluate the moderating role of audit inspection on the relation between the QMS and AQ (Table 5). The results revealed an insignificant moderating role of CICPA in the relation between leadership responsibility and AQ (moderating effect 1: β = - 0.035, t-value = 0.997, $p > 0.05$), ethical requirements and AQ (moderating effect 2: $\beta = 0.034$, t-value = 0.798, $p > 0.05$), human resource and AQ (moderating effect 3: $\beta = 0.010$, t-value = 0.153, $p > 0.05$), engagement performance and AQ (moderating effect 4: $\beta = 0.010$, t-value = 0.153, $p > 0.05$), as well as the monitoring and AQ (moderating effect 5: β = - 0.007, t-value = 0.163, $p > 0.05$).

Table 6. Path Coefficients of Moderating Model

Hypotheses	Path Coefficients (B)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	*p*-values
LR -> AQ	0.082	0.040	2.077	0.038
ER -> AQ	0.105	0.048	2.209	0.028
HR -> AQ	0.208	0.059	3.508	0.000
EP -> AQ	0.083	0.042	1.970	0.049
M -> AQ	0.156	0.048	3.286	0.001
Moderating Effect 1 -> AQ	-0.035	0.035	0.997	0.319
Moderating Effect 2 -> AQ	0.034	0.042	0.798	0.425
Moderating Effect 3 -> AQ	0.01	0.065	0.153	0.878
Moderating Effect 4 -> AQ	-0.045	0.042	1.078	0.282
Moderating Effect 5 -> AQ	-0.007	0.042	0.163	0.870

Findings of this corroborate earlier qualitative research documented the minimal effect of independent inspection on audit performance (Dowling et al., 2018). However, it is inconsistent with previous research that documents positive effects of audit inspection on AQ (Carcello et al., 2011; Gunny & Zhang, 2013). Table 7 summarises the results of the examined hypotheses.

Table 7. A Summary of Hypotheses Results

Hypotheses		Path Coefficients	Std. Dev.	*t*-value	Findings
H1	LR -> AQ	0.082	0.040	2.077	Supported
H2	ER -> AQ	0.105	0.048	2.209	Supported
H3	HR -> AQ	0.208	0.059	3.508	Supported
H4	EP -> AQ	0.083	0.042	1.970	Supported
H5	M -> AQ	0.156	0.048	3.286	Supported
H6a	Moderating Effect 1 -> AQ	-0.035	0.035	0.997	Not Supported
H6b	Moderating Effect 2 -> AQ	0.034	0.042	0.798	Not Supported
H6c	Moderating Effect 3 -> AQ	0.01	0.065	0.153	Not Supported
H6d	Moderating Effect 4 -> AQ	-0.045	0.042	1.078	Not Supported
H6e	Moderating Effect 5 -> AQ	-0.007	0.042	0.163	Not Supported

6. Conclusion

This study examines the perceptions of external auditors in China regarding the effects of various QMS components (leadership responsibility, ethical requirements, human resources, engagement performance and monitoring) on AQ. Collectively, these findings underscore the significance of all of the QMS components in achieving elevated levels of AQ within audit firms. The study provides valuable insights that can help audit firms improve overall audit quality and build trust in financial reporting processes. The study suggests that management should prioritise building strong leaders to promote accountability, dedication, and ethics. Management should also recruit, train, educate, and reward compliance to ensure auditors are qualified to provide high-quality services. This research strengthens auditing research theory by empirically supporting the positive linkages between selected QMS and AQ. This adds to the literature and provides a sound theoretical platform for future research.

In conclusion, the moderating effect of independent audit inspection on QMS and AQ reveals intriguing insights. Despite the CICPA's broad mandate to assess QMS and the practices of accounting firms, including their impact on AQ, the study does not reveal a significant effect of independent audit inspection on QMS and AQ. Notably, the observed impact of independent audit inspection on AQ was found to be minimal, aligning with the perspective presented by Lennox and Pittman (2010), which suggests that regulatory oversight may not be the pivotal determinant in ensuring AQ. An interesting implication arising from this is the divergence between the anticipated benefits of an independent audit inspection

and their actual realisation. The anticipated positive impact on AQ, as driven by regulatory mandates, did not manifest as expected. Consequently, the balance between the costs and advantages associated with independent inspection warrants further scrutiny. This understanding is crucial for refining regulatory strategies, optimising inspection processes, and enhancing the overall effectiveness of efforts to bolster AQ within the audit profession.

The study has a few limitations. Firstly, the sample comprised only external auditors within accounting firms in China. As a result, the study's generalisability may be limited to this context. Future research could be conducted in different settings to find additional support for current findings. Second, due to time constraints, the scope of this study was limited to selected variables drawn from the literature for the elements of QMS. Future research may want to look into other aspects of QMS and their effects on AQ. Finally, hypotheses concerning the moderating effect of independent inspection on AQ were not supported, necessitating further investigation. In order to gain a deeper understanding of the roles and effects of independent audit inspection on audit performance quality, future research may employ qualitative data collection methods or a mixed-methods approach.

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Appendix

Attributes for Audit Quality

No	Tone at the Top
1	Conducting audit in accordance with auditing standards (Knechel et.al, 2013; DeFond et al., 2014; Christensen et.al, 2016).
2	Conducting audit in accordance with ethical standards (Knechel et.al, 2013; DeFond et al., 2014; Christensen et.al, 2016).
3	Conducting audit in accordance with quality management standards (ISQC1) (Knechel et.al, 2013; DeFond et al., 2014; Christensen et.al, 2016).
4	Satisfying the audit client's expectations (DeFond et al., 2014).
5	Valued by the audit client (Sutton & Lampe, 1991).
6	Providing good value for money to the audit client (DeFond et al., 2014).
7	Reporting the correct audit opinion on the financial statements (DeAngelo, 1981; Palmrose, 1988).
8	Demonstrating an appropriate level of challenge to the management of the audit client (Coppage & Shastri, 2014; Mardijuwono & Subianto, 2018).
9	Technically competence of the auditor (Carcello et al.,1992; Francis, 2004).
10	Independence of the auditor (Francis, 2004).

Attributes for Leadership Responsibility

No	Tone at the Top
1	The partners decide on all key matters regarding the firm professional practice (IFAC, 2011).
2	The partners are responsible for leading and promoting a quality management culture (IFAC, 2011).
3	The partners are responsible for providing and maintaining the firms' quality management manual (IFAC, 2011).
4	The partners are responsible for guidance to support engagement quality (IFAC, 2011).
5	The partners are responsible for determining the firm's operating and reporting structure (IFAC, 2011).
6	The partners do not consider the commercial considerations override management for quality (IFAC, 2011).
7	The tone at the top is consistently honest and clear (Deloitte, 2019).

Attributes for Relevant Ethical Requirements

No	Independence
1	Communicate the independence requirements to all firm's personnel (IAASB, 2015).
2	Evaluate circumstances and relationships that creates threats to independence (IAASB, 2015).
3	All members have independence in appearance of our assurance clients (IFAC, 2011).
4	Obtain written confirmation of compliance with the policies and procedures on independence from firm personnel at least annually (IAASB, 2015).
5	Information provided by the engagement partner on the client profile is sufficient to understand threats to independence after accepting audit engagement (Saha & Roy, 2017).
6	Take appropriate action to eliminate the threats to independence (IAASB, 2015).
7	Refuse to accept or continue the engagement if threats to independence cannot be reduced to an acceptable level (IFAC, 2011).
8	Set out criteria for determining the need for safeguards to reduce the familiarity threat to an acceptable level (IAASB, 2015).
	Confidentiality, privacy and data protection
9	Do not disclose any client information to third parties without proper and specific authority (PWC,2019).
10	Do not use any client information for personal advantage of the professional accountant or third parties (PWC,2019).
11	Client information obtained are used only for the purpose for which it was collected (IFAC, 2011).
12	Develop policy which requires personal and client information to be as accurate as possible (IFAC, 2011).
13	Permit the client to be informed of the disclosure of personal information (IFAC, 2011).
14	Require the use of industry-standard technology designed protect this information from unauthorized access or inappropriate use (IFAC, 2011).

Attributes for Human Resource

No	Recruitment and Retention
1	There is a detailed expectation of engagement requirements over the course of each calendar period in order to identify peak periods and potential resources (IFAC, 2011).
2	Follow standard job interview procedures, including documentation of the process (IFAC, 2011).
3	Maintain requirements of qualifications for entry (IFAC, 2011).
4	Ensure sufficient personnel with the commitment to ethical principles (IAASB, 2015).
5	Periodically review the effectiveness of its recruitment program to identify whether revisions to the program are required (IFAC, 2011).
	Continuing Training and Education
6	Require all new personnel to attend an orientation session as soon as is practical after commencing employment (IFAC, 2011).

7	Provide training to new members of the firm to make them conversant with the quality management procedure (Saha & Roy, 2017).
8	Consider establishing a probationary period for all new personnel (IFAC, 2011).
9	Provide the new staff with close feedback during the probationary period (IFAC, 2011).
10	Require our audit professionals to attend training courses that integrate auditing and accounting concepts (PWC,2019).
11	Use simulation-based elements for a more effective learning experience (PWC,2019).
	Managing and Rewarding Compliance
12	Use performance appraisals to encourage personnel to continue their professional development (IFAC, 2011).
13	Use performance appraisals to reinforce good behavior and performance (IFAC, 2011).
14	Performance appraisals in my firm considers performance on various engagements from feedback of a variety of supervisors (IFAC, 2011).
15	Performance appraisals in my firm considers performance on various engagements from feedback of clients (IFAC, 2011).
16	Performance appraisals evaluate the personnel's goal setting (IFAC, 2011).
17	Performance appraisals evaluate the personnel's opportunities for career promotion (IFAC, 2011).

Attributes for Engagement Performance

No	Planning
1	Before planning the nature, timing and extent of an audit, the risk of material misstatements has been assessed (Saha & Roy, 2017).
2	The risk assessment begins in the planning phase of the audit and continues through the issuance of our report (PWC, 2019).
3	Involve all members of the engagement team in the planning process which increase their effectiveness (Saha & Roy, 2017).
4	In the audit plan, more resources and a greater number of engagement team members are allocated to high-risk areas (Saha & Roy, 2017).
5	The work of specialists from third-party involvement are considered and secured in my firm (IFAC, 2011).
6	The engagement team is briefed in order to understand each team member's respective objectives (IFAC, 2011).
	Consultation
7	My firm maintains a memorandum of the audit strategy, completion of audit program, audit completion checklist as a part of the planning process (Saha & Roy, 2017).
8	My firm takes appropriate consultation on difficult or contentious matters (IAASB, 2015).
9	Sufficient resources are available to enable appropriate consultation to take place (IAASB, 2015).
10	Consultations are documented and agreed by both the individual seeking consultation and the individual providing consultation (IAASB, 2015).
	Quality management reviewing
11	The engagements involve of another audit partner to review the validity of the audit strategy (Saha & Roy, 2017).

12	The engagement partners resolve all issues raised by the engagement quality management reviewer (Saha & Roy, 2017).
13	The independent engagement quality management reviewer partner role would be eligible to act as audit engagement partner on other relevant audit engagements (Deloitte, 2019).

Attributes for Monitoring

No	Monitoring Program
1	The monitoring program determines of whether sufficient consultation has taken place on difficult issues (IFAC, 2011).
2	The monitoring program determines there is sufficient documentation applicable to the work performed (IFAC, 2011).
3	The monitoring program assesses of whether the firm's quality management policies and procedures have been appropriately applied (IFAC, 2011).
4	The monitoring program primarily focuses on the implementation of new standards and policies, audit methodology enhancements, and matters noted during inspections cycles (PWC,2019).
	Report on the Results of Monitoring
5	Report to all the partners and staff on the results of monitoring (IFAC, 2011).
6	The monitoring report includes a detailed description of the monitoring process performed (IFAC, 2011).
7	The monitoring report includes the conclusions drawn from the monitoring procedures (IFAC, 2011).
8	The monitoring report includes the deficiencies and the actions taken, together with any further recommended actions (IFAC, 2011).

Attributes for Independence Inspection

No	Responsibilities in audit practice and quality review
1	CICPA is formulating professional regulatory rules and taking disciplinary measures against those with non-compliant practices (CICPA, 2014).
2	CICPA is supporting audit members to comply with the laws in conducting their engagements (CICPA, 2014).
3	CICPA is responsible for setting standards and policies of practice quality review on accounting firms (CICPA, 2014).
4	CICPA is in charge of organizing the quality review on listed accounting firms (CICPA, 2014).
	Review plan
5	The annual review plan of the CICPA specifies the requirements of the review (CICPA, 2014).
6	In the review plan, CICPA considers audit engagements that might have high audit risks (CICPA, 2014).
7	CICPA considers priority of inspecting the firms that exists disagreements among the partners which might affect the practice quality of the firms (CICPA, 2014).
8	In the review plan, CICPA considers priority of inspecting the firms that adopt unfair methods to compete for new engagements (CICPA, 2014).
9	In the review plan, CICPA considers priority of the firms that make vicious and defamatory statements about their peers and damage their peers' interests (CICPA, 2014).
10	In the review plan, CICPA considers priority of the firms that receive complaints and have problems reported by others (CICPA, 2014).
11	In the review plan, CICPA considers priority of the firms that the fees charged by the firms violate the Practice Fee Charge Management Rules (CICPA, 2014).
12	In the review plan, CICPA considers priority of the firms that are newly established (CICPA, 2014).
13	In the review plan, CICPA considers priority of that the number of engagements accepted by the firms clearly do not match the human resources or capacity of the firms (CICPA, 2014).
	Inspectors and advisory experts
14	The CICPA review group is made up of more than 3 inspectors including a group leader (CICPA, 2014).
15	The inspectors conduct the practical quality review within the scope of authorization of the CICPA (CICPA, 2014).
16	The inspectors are selected from the CPAs and CICPA staff with vast relevant work experience (CICPA, 2014).