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Factors Affecting Risk-Based Audit and Quality Audit

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Abstract

There are various issues that are associated with audit quality, which can often lead to audit failures. The State Audit Office of Vietnam (SAV) needs assistance in improving its audit quality. This study was conducted to provide empirical evidence about the correlation between the risks of audited entities, the competitive ability of state auditors, and audit quality. The study also seeks to establish the moderating effect of risk-based auditing on the relationship between the abovementioned factors and audit quality. The research data was collected from 221 state auditors and analyzed using SEM linear structure analysis with SmartPLS 4.0.8.5 software. The research findings suggest that the risk of the audited entity and the competitive ability of state auditors positively and significantly impact the application of RBA, which contributes to the assurance of audit quality in SAV. Therefore, the practical application of RBA, which involves accurately identifying the risks of audited entities, helps to improve audit quality and efficiency. This study contributes to the theory of audit quality in the public sector, which is diverse and inconsistent due to various economic and political factors such as corruption and reputation.

Keywords:

SAI; Risk-based Audit; Auditing; Quality Audit; Information Technology; Vietnam.

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1- Introduction

Audit quality is a multi-dimensional concept that varies depending on individual perspectives and stakeholders. The financial statements users believe that a high-quality audit is one that does not contain any material misstatements or regulatory violations. On the other hand, auditors define a high-quality audit as one that is completed satisfactorily according to the audit methodology [1]. Audit quality continues to be a popular topic of discussion in the public sector among stakeholders due to concerns about financial scandals, corruption, waste, and abuse of power [2]. However, there is no widely accepted definition of audit quality [3]. According to Zhan et al. [2], *audit quality* is defined as a combination of three factors: (i) the ability to detect material misstatements, (ii) auditor independence, and (iii) the ability to report such violations. Regulatory bodies use compliance with professional standards to assess audit quality. For example, according to the International Auditing and Assurance Standards Board (IAASB), "the term "audit quality" encompasses the key elements that create an environment which maximizes the likelihood that quality audits are performed consistently" [4]. The public perceives an audit to be of high quality when the audited entity does not have economic or social responsibility problems [1]. Ultimately, however, different perspectives will assume different values.

Several studies have developed a model for the concept of audit quality to enhance auditors' awareness [5-7]. Knechel et al. [1] have identified essential components for audit quality, including the capacity to detect and report errors [5], cultural factors, auditor capacity, effectiveness of the audit process, audit report quality, and factors outside an auditor's control [8]. Despite many significant research studies on audit quality, there are still debates about which value systems to use as the basis for audit quality.

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Citizens expect high-quality audits in the public sector, which results in material errors and non-compliance with laws and regulations being promptly identified. However, it is not enough to just identify these issues; the management and use of public resources must also be economical, efficient, and effective. Supreme Audit Institutions (SAIs) are under increasing pressure to meet stakeholders' expectations regarding audit quality and value [9]. For example, SAIs face criticism for failing to highlight the financial sustainability and performance of governments and public institutions, as well as their failures to provide public services. Thus, the deficiency in the performance of audits exists not only in the private sector [10] but also in the public sector [11]. Issues of the independence and legal authority of public sector auditors have been persistent challenges in public auditing. Therefore, it is important to examine what factors affect the quality of SAIs' audits in the public sector. In addition to personal aspects and auditor independence, institutional aspects, the audit environment, and organizational pressures also impact public sector audit quality [12]. However, there are few studies that examine the impact of factors such as work pressure, competition among state auditors, the audited entity's risks, and the application of information technology (IT) when applying the RBA approach to audit quality in the public sector, especially in Vietnam, a transition economy.

This study aims to explore the factors that affect the quality of public sector audits, with a specific focus on the State Audit Office of Vietnam (SAV). SAV is responsible for auditing state budget revenues and expenditures, confirming state budget settlement reports and financial statements of public entities, state-owned enterprises, and public investment projects. Despite inheriting the audit quality assurance system from the International Organization of Supreme Audit Institutions (INTOSAI), there are still differences in perspectives between SAV's policymaking department and state auditors, which need to be addressed in order to improve state audit quality. This study will investigate whether the quality control gap in state auditing can be minimized by identifying the key factors that influence audit quality.

This study contributes to the theory of audit quality in the public sector, which is diverse and inconsistent because it is influenced by political factors such as corruption and reputation or economic factors. The study shows that the practical application of the RBA—which involves accurately identifying the risks of the audited entity—contributes to improving audit quality and efficiency. It also demonstrates that applying the RBA, along with competitive pressure, pushes state auditors to focus more on collecting information for each audited entity, thereby making risk assessment decisions and materiality determinations more accurate and enhancing audit quality. However, increasing pressure on auditors to pursue higher quality may reduce audit efficiency. Since audit quality measures are primarily based on indicators that represent compliance with professional standards, a rigorous audit process only contributes to maintaining the inherent audit status quo without meeting reasonable public expectations.

2- Literature Review

Audit quality is defined differently depending on the different perspectives and unique characteristics of audited entities, as well as the ability of the SAIs to ensure audit quality. Therefore, assessing what constitutes a good-quality audit is a topic that continues to be explored by researchers. From an organizational perspective, audit quality can be measured through inputs, operational processes, results, and context [1]. From an individual perspective, audit quality depends on each auditor's qualities associated with their capacity and independence, such as their values, ethics, attitudes, abilities, skills, knowledge, and experience [4]. In the public sector, audit quality is measured and evaluated mainly through the values that the audit brings to society, such as detecting irregularities, material errors, and financial reporting fraud by public organizations [13]. Audit quality is assured when auditors provide objective assessments of the financial information and operational efficiency of public organizations based on strict compliance with professional standards, including standards of professional ethics [14].

Compared to the private sector, audit quality in the public sector has broader implications. In a narrow sense, similar to financial statement audits in the private sector, audit quality is the auditor's ability to detect and report material misstatements. In a broad sense, audit quality is understood as achieving effectiveness and efficiency in the SAIs' audit programs. For example, for performance audits, the SAIs must show the economic and effective management and use of public resources [14] or help prevent or minimize corruption, waste, and abuse of power in public entities through audit activities. Accordingly, audit quality in the public sector is measured alongside the reliability of financial information that is necessary for decision-making and accountability purposes [2], enhancing transparency, creating a robust internal control environment in the public sector [13], improving the efficiency of public administration [15], and creating added value for society and the credibility of the SAI [16].

Audit quality in the public sector is centered around legal principles [17]. Lonsdale et al. [18] classify audit quality into two elements: (i) the quality of the audit process, which refers to the way that the report is prepared, and (ii) the impact of the audit report. Measuring audit quality in the public sector is a challenging task that requires accurate observation and evaluation. There are two ways to measure and evaluate audit quality, namely, by identifying and measuring factors that affect it and by defining criteria for measuring it. Caruana and Kowalczyk [17] have summarized 12 core factors that influence the quality of audits. These factors include auditor independence, auditor capacity, skill, personal characteristics, size of audit organization, income, customer characteristics, awareness of users of audit reports,

audit tenure, form of audit organization, regulations, and types of non-assurance services. Vu and Hung [19] also demonstrated that auditor independence is related to SAI's audit quality. AL-Qatamin & Salleh [20] added other factors that have a direct relationship with audit quality, including risk assessment, quality of audit evidence, professional auditing judgment, role of technology, and auditor-client negotiations. Regarding the criteria for audit quality measurement, a number of previous studies (e.g., Francis & Michas [21]) have confirmed representative indicators for audit quality, including financial statement restatements, audit fees, going-concern opinions, lawsuits filed against auditors, client bankruptcies, and levels of abnormal accruals. However, some of these indicators are not sufficient to represent the constructs of audit quality [22].

Auditing firms and SAIs have agreed to adopt an RBA with the aim of enhancing the efficiency and quality of audits. This approach involves auditors conducting more audit tests on items that have a higher likelihood of misstatement. According to Bell et al. [23], when implementing RBA, auditors should understand the client's business strategy, identify the risks that pose a threat to achieving strategic objectives, understand the client's response to these risks, and assess the impact of risks that could lead to misstatements. According to Amran et al. [24], RBA is highly beneficial to the public sector. RBA provides a framework to improve the efficiency, effectiveness, and quality of audits [25]. Numerous studies have confirmed the positive correlation between RBA and audit quality as it aids in enhancing the quality of audit plans and the amount of audit evidence collected [26].

The auditor's risk assessment is a crucial aspect that determines the nature, timing, and extent of audit procedures, which directly impacts the quality of the audit. Various studies have demonstrated that different risk assessment methods can produce different outputs [27], leading to more complex audits. Similarly, previous research has shown that the approaches used to assess risk can also influence the design of audit procedures and, ultimately, the quality of the audit [7]. An RBA can be influenced by several factors, such as legal institutions, people, the working environment and conditions, and other client characteristics. Kurniawan et al. [28] provided evidence that professional development, top management commitment, and the role of internal audit have a significant positive impact on RBA implementation in local government. Moreover, the degree of influence that these factors have can vary depending on cultural environments and countries. Therefore, it is necessary to consider the factors that affect audit quality in each context [29].

3- Hypotheses Development and Research Model

3-1- Hypotheses Development and Research Model

3-1-1- Work Pressure

According to DeAngelo [5], audit quality depends on the auditor's ability to detect errors and appropriate actions when errors are detected. Most empirical studies confirm the positive association between auditor competence and the ability to audit quality. Knechel et al. [1] concluded that auditors' judgments are influenced by various pressures and incentives, such as the risk of losing clients, fee pressures [30], and motivation to retain a customer base, but there are also pressures related to participation, such as superior preferences and time or budget pressures [31].

In the public sector, auditors face political pressure, time pressure, resource pressure, the pressure of litigation or complaint risks, public pressure regarding the application of IT, the application of new audit approaches, and administrative pressure [12]. These pressures can have a positive or a negative impact on audit quality and efficiency; political pressure and litigation risk [6] are especially decisive factors that affect audit quality. For example, in response to political pressure, SAIs may avoid audit issues that are sensitive to corruption due to apprehensions around requiring more resources and capabilities to detect and prove corruption. On the other hand, SAI leaders rarely confront governments in developing countries because they need to gain political support.

If auditors are worried about facing legal action due to their audit conclusions and recommendations, they may limit the scope of the audit or avoid the audit altogether. This can result in state auditors being unable to confirm the financial information of the audited entity, which ultimately reduces the quality of the audit. Research has shown that this sort of pressure on auditors can have negative effects, which can result in behavioral disorders [31] and stress, even leading to conflicts that may compromise the auditor's ability to detect errors and ultimately harm the audit quality [32]. Besides improving the RBA, there are several risks of an audit that need to be considered, including the expectations gap, ambiguity regarding auditor responsibilities, a reasonable level of assurance, and compliance with professional standards in practice [33]. These factors put pressure on auditors to conduct audits using RBA.

3-1-2- Information Technology

IT advancements have brought about a fundamental change in current audit methods. Electronic documents and general software are now used to process audit data, allowing for the effective application of audit methods based on risks in the IT environment. Customized computer-assisted audit techniques (CAATs) can be used in the audit process to reduce the occurrence of material misstatements in financial statements [34] and increase the audit task effectiveness [35]. This has an impact on all auditors, from the individual auditor level to the audit team and the organizational levels.

Evidence suggests that IT can only improve performance if used. The impact of IT on the audit process through audit risk is reflected in internal control, where IT leads to improved control and auditing and reduced risk [36]. The use of CAATs is positively associated with audit report quality even after controlling for the big four international audit firms and internal control systems [37]. Several studies have provided evidence that the use of IT can have a positive impact on the audit process, providing consistency in testing and maintaining audit quality [38, 39].

Bierstaker et al. [40] provided evidence of the influence of IT infrastructure on RBA applications. This is a fundamental factor that supports auditors in risk-based auditing activities. Nazmi et al. [41] examined the factors influencing risk-based auditing and its impact on external audit quality in Jordanian commercial banks. The results of the study indicate that technological developments have a significant influence on RBA adoption. Van Buuren et al. [42] examined various audit methods that apply different risk approaches and found that investment in IT is an important factor that explains the use of RBA by firms other than the Big 4. Research by Tarek et al. [43] in developing countries shows that the level of IT application in auditing depends on the expertise of auditors and IT experts rather than client characteristics or the size of the company.

3-1-3- Competition

Many studies have found a link between competitiveness and audit quality. Sustainable competitive advantage is essential for audit firms. Firms aim to increase company image, reduce costs, improve business efficiency, and commit to service quality in order to create a competitive advantage to attract and retain audit clients. The size of audit firms and greater financial resources to maintain service quality can reduce the likelihood of lawsuits [44]. Similarly, large-scale audit firms build their brands and protect their reputations through high-quality audits [45, 46].

Based on the theory of firm resources, Phua et al. [47] compared eight audit firms in Hong Kong. Their study concluded that larger audit firms have a competitive advantage in technology, staff qualifications, financial resources, and brand recognition. They prioritize minimizing lawsuits and preserving their image to ensure audit quality. Similar studies in Vietnam (e.g., Le et al. [25]) found that RBA is practiced by the Big 4 companies and applied in listed companies and insurance companies but is not commonly implemented by firms other than the Big 4. Additionally, competition affects audit quality, the duration of the audit, and the turnover of senior personnel [48].

In the public sector, SAI competes with other inspection and examination agencies to provide audit results that meet parliament, government, and public requirements. Within each SAI, there is competitive pressure on the efficiency and quality of audit work between auditors and between audit agencies. SAI encourages or requires the use of IT and RBA applications in audit activities to maintain quality and improve efficiency. The application of RBA also helps ensure legal liability for auditors.

3-1-4- Risks of the Audited Entity

Previous related studies, such as Houston et al. [30], point out that auditors adjust the extent of audit tests depending on the risk of the audited entity and find that the presence of risk factors increases the need to request additional audit evidence. Risk assessment depends significantly on the number of risk factors identified in each area or an audited entity with high business risks. Furthermore, high inherent risk and high control risk also significantly increase the number of planned audit hours compared to low risks. The risks of the audited entity, especially information system risks, affect risk identification and audit planning. The time and effort required to perform an audit increase with the level of assessed business risk [23]. Abdallah et al. [26] measured the impact of business risks on the quality of the audit process by distributing questionnaires to 325 auditors working in 82 audit offices in Jordan. The results show that there are three types of business risks that affect audit quality: systemic, environmental, and professional.

In the context of auditing, increased risk can affect auditor conservatism and determine the level of reputation and risk of auditor litigation, which will determine the audit quality. In the public sector, SAIs have the authority to choose the audited entity and audit content, and the risk assessment of the audited entity is related to the risk of fraud, especially corruption, which is a significant concern. The motivation for risk management in SAIs is threefold. Firstly, the auditor could fail to detect fraud and corruption in a high-risk audited entity because the audit method is based on sampling techniques, which increases the professional and legal risks for auditors. Secondly, audited entities that are assessed to have higher potential risks require auditors to invest greater time and effort in collecting more audit evidence. However, this additional work may be less recognized or even hindered because audited entities adopt a defensive strategy. Thirdly, high-risk audited entities push auditors to be more thorough and cautious to improve audit quality. However, in reality, the potential for fraud and corruption in these units is often discovered later by other agencies, leading to auditors being jointly responsible. This is one of the paradoxes associated with audit quality expectations and perceived audit quality.

From the results of the above discussion, a proposed research model (Figure 1) and the research hypotheses (Table 1) are as follows:

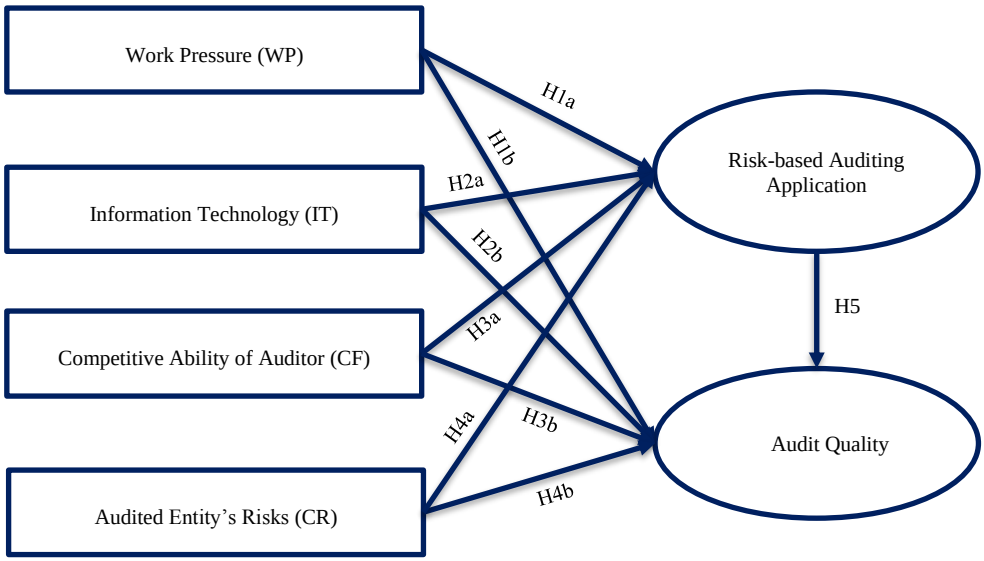

Figure 1. Proposed Research Model

Table 1. Research Hypotheses and Expectations

Hypotheses	Expectations	Reference
H1a. Work pressure for auditors has a negative relationship with the application of RBA in the SAV.	(-)	Margheim et al. [31]; Umaru et al. [32]
H1b. Work pressure for auditors has a negative relationship with the audit quality of the SAV.	(-)	Tuan & Dung [12]; DeFond & Zhang [6]; Margheim et al. [31]; Umaru et al. [32]
H2a. IT support has a positive relationship with RBA adoption in the SAV.	(+)	Bierstaker et al. [40]; Nazmi et al. [41]; Van Buuren et al. [42]; Kamil & Nashat [36]
H2b. IT support has a positive relationship with the audit quality of the SAV.	(+)	Nazmi et al. [41]; AL-Qatamin & Salleh [20]
H3a. Competitive ability of state auditor has a positive relationship with the application of RBA in the SAV.	(+)	Le et al. [25]
H3b. Competitive ability of state auditor has a positive relationship with the audit quality of the SAV.	(+)	Phua et al. [47]; Pham et al. [48]
H4a. An audited entity's risks have a positive relationship with the application of RBA in the SAV.	(+)	Houston et al. [30]
H4b. An audited entity's risks have a positive relationship with the audit quality of the SAV.	(+)	Abdallah et al. [26]; AL-Qatamin & Salleh [20]
H5. The application of RBA has a positive relationship with the audit quality of the SAV.	(+)	Abdallah et al. [26]; AL-Qatamin & Salleh [20]; Le et al. [25]; Detzen & Gold [7]

4- Methodological Approach

The study aims to explore the factors affecting the application of RBA and audit quality. The proposed research model shows the relationship between dependent variables, including RBA application and audit quality (QA), and independent variables, including work pressure (WP), information technology (IT), competitive ability of auditors (CF), and audited entities' risks (CR). The study used questionnaires as the primary research tool. In addition to general information about respondents, the questionnaire included 29 questions inherited from related studies. The questionnaire used a five-point Likert scale with the following levels: 1: Strongly disagree, 2: Disagree, 3: No opinion, 4: Agree, and 5: Completely agree (Table 2).

Table 2. Measurement Scale in Research

Latent variable	Code	Number of measurement scales	Source of measurement
Work pressure	WP	5	Margheim et al. [31]; Umaru et al. [32]
Information technology	IT	6	Bierstaker et al. [40], Nazmi et al. [41]
Competitive ability of auditor	CF	4	Phua et al. [47], Lennox [44]
Audited entity's risks	CR	4	Abdallah et al. [26]
Risk-based auditing application	RBA	5	Allaham et al. [50], Mawutor et al. [46], Nazmi et al. [41]
Audit quality	QA	5	Alaraji et al. [45]

According to Hair et al. [49], the sample size of a research study depends on factors such as the significance level, R2 value, and the maximum number of arrows pointing to a latent variable. Marcoulides & Saunder [51] suggested that the minimum required sample size depends on the maximum number of arrows pointing to a latent variable in the SEM linear structural equation model. Since the research model of this study (Figure 1) has at least five arrows pointing to latent variables, a minimum sample size of 50 is required. Hoyle [52] also recommended a sample size of 100 or more as a good starting point. Therefore, this study aims to use a sample size of 250. Surveys were distributed between March 2023 and May 2023 to 300 state auditors. Research data was collected through a survey, and 221 valid answer sheets were obtained and processed using SmartPLS 4.0.8.5 software.

5- Research Results

5-1- Sample Profile

The survey used demographic information to gain a better understanding of the professional situations of the respondents. Table 3 displays the background information of the respondents, including their sex, education, work experience, and more. The data revealed that 53% (n=117) of Vietnamese auditors held a postgraduate degree (High School diploma, Master's, or Ph.D.), while 46% (n=101) held a bachelor's degree. Of these, 55% (n=122) were trained in finance, accounting, and auditing, 22% (n=49) in technical fields, and 23% (n=50) in economics. More than half (57%) had over ten years of experience in auditing practice (n=126), while 22% (n=49) had between five and ten years of experience. Only 21% of auditors had less than five years of experience. The majority of the participants (n=81) (37%) were in audit leadership positions as team leaders or managers of audit teams in the field of in-depth auditing (Table 3).

Table 3. Demographic Profile Details of the Respondents

Demographics	Particulars	Frequency	Percentage (%)
Sex	Female	108	49%
	Male	113	51%
		221	**100%**
Qualification	B. Com	101	46%
	High School diploma, Master's, or Ph.D.	117	53%
	Others	3	1%
		221	**100%**
Specialized training	Accounting and auditing	122	55%
	Economy	50	23%
	Teachnical area	49	22%
		221	**100%**
Position	Audit leadership	81	37%
	Auditor	90	41%
	Audit assistant	50	23%
		221	**100%**
Experience	Less Than 5 Years	46	21%
	5 To Less Than 10 Years	49	22%
	10 To Less Than 20 Years	119	54%
	Above 20 Years	7	3%
		221	**100%**

***Appropriateness of the Outcome Measurement Model*:** Composite reliability (CR) is preferred by many researchers over Cronbach's alpha because the latter underestimates reliability. According to Chin [53], in exploratory research, CR must be above 0.6, whereas in confirmatory studies, a threshold of 0.7 is considered to be the appropriate level of the CR index [54]. Many other researchers (e.g., Hair et al. [49]) agree that 0.7 is the appropriate assessment threshold in most cases. In our data, seven scales do not meet CR composite reliability (<0.7), so these scales are eliminated for a second test (Table 4).

Table 4. Eliminated Scales

Observed variable name (scale removed)	Composite reliability (CR)	Benchmark
IT5	0.578	>0.7
IT6	0.589	
WP3	0.577	
WP4	0.529	
RBA1	0.608	
RBA2	0.611	
QA3	0.681	

After eliminating the seven scales, a second CR test was conducted for 22 observed variables to measure six concepts. The Cronbach's alpha values for these variables ranged from 0.702 (WP) to 0.917 (CR), whereas the CR values ranged from 0.764 (RBA) to 0.921 (CR) (Table 5). Cronbach's alpha values and CR are above the threshold of 0.7, indicating the reliability of the constructs in the model. The variance extracted (AVE) value for each construct is greater than 0.5 (Table 5), indicating that the convergence of each construct in the model is appropriate.

Table 5. Reliability and Validity of Constructs

Constructs	Items	Factor loading	Cronbach's alpha value (CA)	Composite reliability (CR)	Average variance extracted (AVE)
Competitive ability of auditor (CF)	CF1	0.796	0.836	0.875	0.655
	CF2	0.806			
	CF3	0.802			
	CF4	0.833			
Audited entity's risks (CR)	CR1	0.878	0.917	0.921	0.801
	CR2	0.902			
	CR3	0.928			
	CR4	0.871			
Information technology (IT)	IT1	0.773	0.842	0.859	0.678
	IT 2	0.845			
	IT 3	0.883			
	IT 4	0.787			
Audit quality (QA)	QA1	0.757	0.790	0.793	0.613
	QA2	0.805			
	QA4	0.754			
	QA5	0.814			
Risk-based auditing application (RBA)	RBA3	0.801	0.763	0.764	0.678
	RBA4	0.851			
	RBA5	0.817			
Work pressure (WP)	WP1	0.887	0.702	0.808	0.613
	WP2	0.756			
	WP5	0.693			

Discriminant validity shows the distinctiveness of a construct compared to other constructs in the model. The traditional approach to evaluating the discrimination of a scale involves using the AVE square root index proposed by Fornell & Larcker [55]. However, this method has limitations and requires a more accurate assessment method. Henseler et al. [54] used simulation studies to demonstrate that discriminant validity is better assessed by the HTMT index that they developed. SmartPLS uses both methods of evaluating discrimination, with a greater focus on HTMT. The HTMT values for all variables are less than 1.0 (Table 6).

Table 6. Discriminant Validity Test Results (HTMT)

Constructs	CF	CR	IT	QA	RBA	WP
Competitive ability of auditor (CF)						
Audited entity's risks (CR)	0.252					
Information technology (IT)	0.639	0.221				
Audit quality (QA)	0.390	0.733	0.320			
Risk-based auditing application (RBA)	0.410	0.524	0.414	0.797		
Work pressure (WP)	0.903	0.297	0.627	0.303	0.376	

The results of the above analysis show that the scales used in the proposed research model achieve reliability and validity. Therefore, the scales continue to be used to analyze the structural model.

5-2- Results of Structural Model Testing

This study aims to test the hypotheses and suitability of the linear structural model (Figure 1). The study first tested multicollinearity, followed by the significance level of the model [49].

***Multicollinearity Test*:** Multicollinearity is a condition in which two or more predictor variables are highly correlated. Multicollinearity occurs when an independent variable has a strong linear relationship with other predictor variables, as determined by a large VIF (>5.0) [49]. Results show that the VIF coefficients of all variables are all less than 5.0 (Table 7); therefore, there is no multicollinearity for the SEM linear structural model.

Table 7. Multicollinearity Test Results

Constructs	CF	CR	IT	QA	RBA	WP
Competitive ability of auditor (CF)				1.913	1.835	
Audited entity's risks (CR)				1.399	1.021	
Information technology (IT)				1.469	1.437	
Audit quality (QA)						
Risk-based auditing application (RBA)				1.618		
Work pressure (WP)				1.759	1.726	

***The Suitability of the Structural Model*:** The assessment of model fit was performed by bootstrapping in the SmartPLS 4.0.8.5 software to evaluate the path coefficient of the structural model. The results of testing the direct relationship between the constructs are based on the path coefficient (β) and p-value to evaluate the impact of exogenous variables on endogenous variables. Table 8 and Figure 2 shows the significance values for the path coefficients identified from the bootstrapping process.

Table 8. Direct Relationships Between Constructs in the Model

Hypothesis	Path	R^2	β	t-statistics	P-value	Result
Model 1						
H1a	WP → RBA	38.2%	0.144	1.787	0.074	Not supported
H2a	IT → RBA		0.140	1.672	0.095	Not supported
H3a	CF → RBA		0.219	2.773	0.006	Supported
H4a	CR → RBA		0.484	9.297	0.000	Supported
Model 2						
H1b	WP → QA	59.3%	0.060	0.980	0.327	Not supported
H2b	IT → QA		0.056	0.798	0.425	Not supported
H3b	CF → QA		0.157	2.181	0.029	Supported
H4b	CR → QA		0.511	9.434	0.000	Supported
H5	RBA → QA		0.311	4.453	0.000	Supported

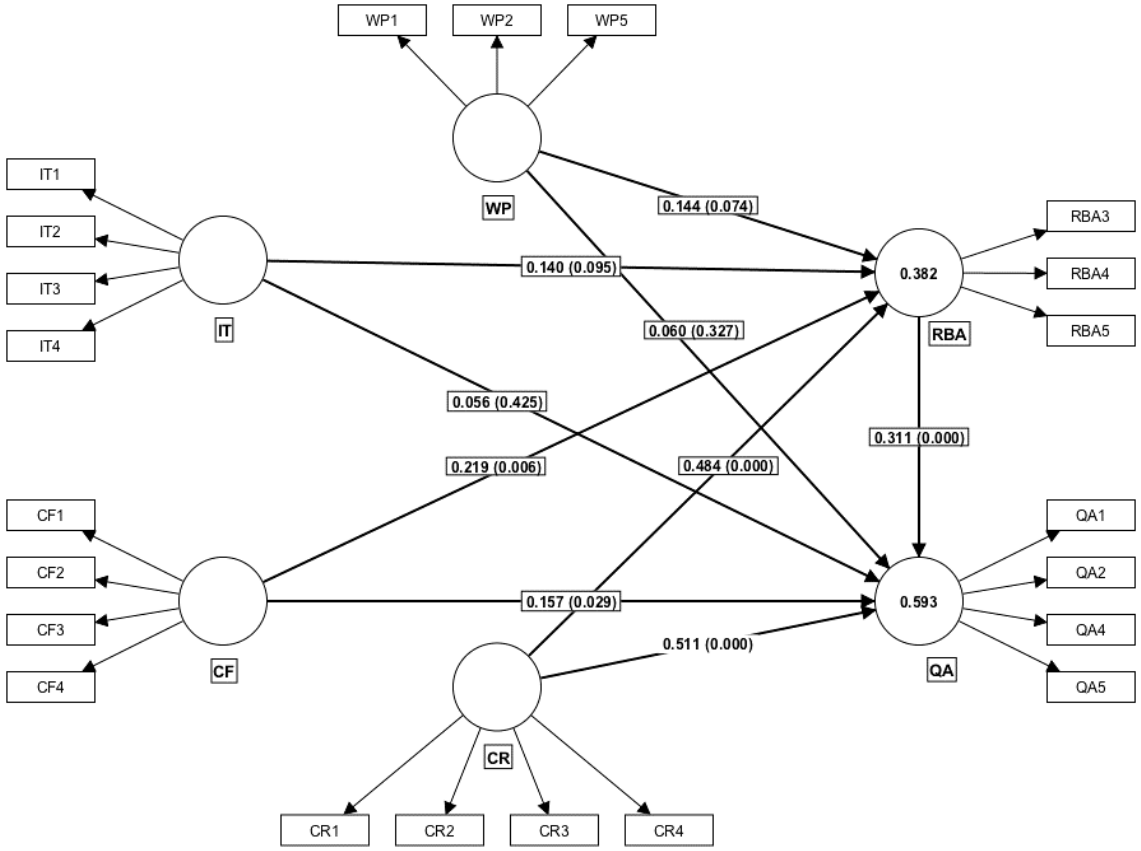

Figure 2. Model Influencing Factors on RBA Application and Audit Quality

Output data shows that the level of variation in audit quality (QA) is also predicted reasonably well, with the coefficient of determination R^2 being 59.3% (Table 8). Next is the RBA application, which is explained by exogenous variables with an R^2 of 38.2%. This result shows that the model's predictive ability is significant.

Table 9 presents the influence value of the f^2 scale corresponding to each structural model. In Model 1, the results provide additional evidence to support the conclusion that the RBA depends most on the risk coming from the audited entity (CR, f^2= 0.371). The remaining factors have variable levels of influence, with f^2 varying from 0.019 to 0.042. In Model 2, the audited entity's risks (CR) strongly impacts audit quality (QA, f^2= 0.459). Next is the application of RBA, which has the second level of influence on audit quality (QA, f^2=0.147). The remaining factors have a weak influence on audit quality.

Table 9. Degree of Influence by Scale

Constructs	CF	CR	IT	QA	RBA	WP
Competitive ability of auditor (CF)				0.032	0.042	
Audited entity's risks (CR)				0.459	0.371	
Information technology (IT)				0.005	0.022	
Audit quality (QA)						
Risk-based auditing application (RBA)				0.147		
Work pressure (WP)				0.005	0.019	

***Determining the Level of the Predicted Power*:** The Table 10 shows that the predicted Q^2 values for the two dependent variables, audit quality and risk-based auditing, and the near-zero mean values of the PLS-SEM prediction error indicate that the final model possesses sufficient predictive power (audit quality: predicted Q2=0.510, mean of PLS-SEM prediction error=-0.002; risk-based auditing: predicted Q2=0.334, mean of PLS-SEM prediction error=0.002).

Table 10. LV Prediction Summary (Q^2) and PLS-SEM Prediction Error

	Predicted Q^2	Mean
QA	0.510	-0.002
RBA	0.334	0.002

The two PLS-SEM LV error histograms of audit quality and risk-based auditing (Figure 3) have nearly symmetrical bell shapes, which suggests that they follow a normal distribution. Hence, the RMSE's prediction of the error value can be used to determine the predictive power of the final model.

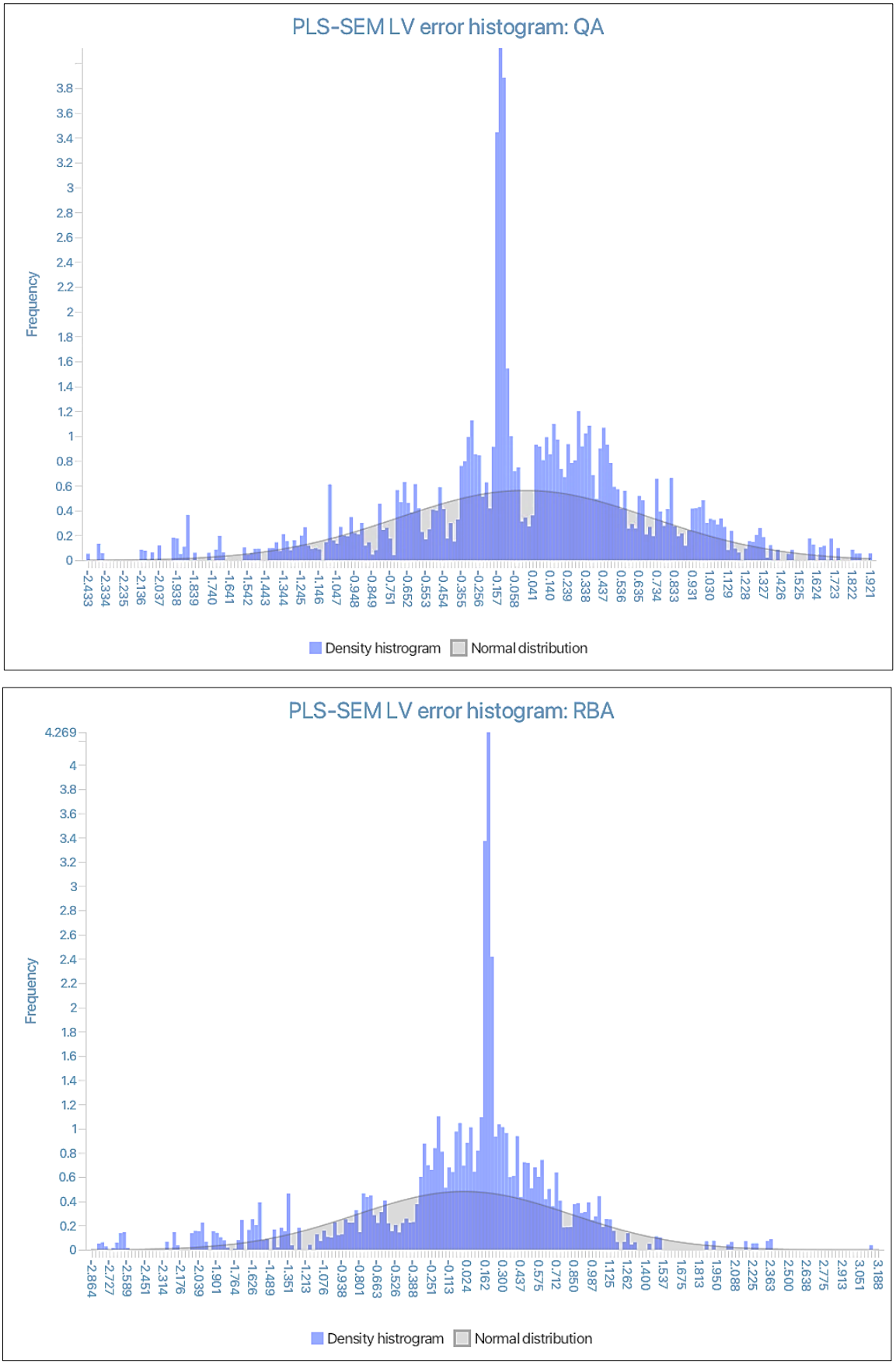

Figure 3. LV Error Historgrams

Table 11. MV Prediction Summary

	Q^2predict	PLS-SEM_RMSE	PLS-SEM_MAE	LM_RMSE	LM_MAE
QA1	0.259	**0.753**	0.563	**0.813**	0.609
QA2	0.319	**0.811**	0.579	**0.849**	0.591
QA4	0.362	**0.647**	0.501	**0.651**	0.452
QA5	0.292	**0.855**	0.636	**0.885**	0.642
RBA3	0.246	**0.766**	0.584	**0.771**	0.530
RBA4	0.227	**0.668**	0.480	**0.695**	0.481
RBA5	0.199	0.684	0.497	0.673	0.473

The predicted Q^2 values of the indicators of the two dependent variables in the PLS-SEM model are positive (in the range of 0.199 to 0.362), and six of the seven indicators in the PLS-SEM model have RMSE values smaller than in the LM model. Therefore, the final PLS-SEM model has moderate predictive power [56]. In conclusion, the proposed model can be used to predict the causal relationship between the competitive ability of the auditor, the audited entity's risks, and the RBA application, as well as the effect of these factors on audit quality.

5-3- Discussion of Results

SAIs prioritize audit quality and regularly implement new organizational models and audit methods to maintain and improve audit quality, such as through the application of RBA, which has been found to enhance audit quality. This study examines the factors that influence the RBA approach and the audit quality of SAV. The research reveals that three factors have a positive relationship with audit quality—the audited entity's risks (CR, β=0.511), the application of RBA (β=0.311), and the competitive ability of state auditors (CF; β=0.157). These findings are consistent with previous studies [7, 20, 25, 26, 47, 48].

The data output (Table 8) shows two factors that have a positive relationship with the application of RBA—the audited entity's risks (CR; β=0.484) and the competitive ability of state auditors (CF; β=0.219). This result echoes the findings from previous studies (e.g., Houston et al. [30]; Le et al. [25]).

The audited entity's risk has the strongest impact on RBA application, which is consistent with the finding of Le et al. [25]. However, the risk of the audited entity has the strongest impact on the audit quality of the SAV, contrary to the findings of Le et al. [25]. Because, most independent audit clients in Vietnam are small businesses [25]. Meanwhile, the audit field of the SAV is quite broad, from auditing local budgets, which include 10-25 audited entities in one audit, and auditing state-owned enterprises, which often include parent companies and subsidiaries. On the other hand, the SAV's audit objectives are diverse and complex and include performance, compliance, financial statements, and specialized audits. Therefore, identifying risks when choosing audit topics is always the primary concern of the SAV.

The research results also show a statistically significant positive effect of RBA on audit quality. However, in order to achieve optimal audit quality, it is necessary to consider ways to implement RBA that are appropriate to the audited entity, audited topic. Kutum et al. [29] argue that narrowing or expanding RBA depends on the assessment of the business risks of audited entities of different sizes.

The competitive pressure between state auditors in specialized and regional SAV strongly influences the effectiveness of RBA applications and audit quality. With a larger number of audit focal points and an audit time of at most 60 days, specialized and regional state auditors are often under pressure to assess risks and determine audit materiality. On the other hand, an audit often combines all three types of audits—financial audit, compliance audit, and performance audit—which correspond to many other audit areas, leading to the application of RBA and complicating the assessment of audit quality [57].

The application of IT in auditing activities is inevitable as businesses increasingly rely on computer systems to record, trace, and process transactions. However, research shows that the application of IT is not statistically significantly related to audit quality and RBA application. This finding is inconsistent with the results of Le et al. [25], Nazmi et al. [41], Tarek et al. [43], and Van Buuren et al. [42]. It indicates that. although state auditors recognize the critical role of IT and RBA in enhancing audit efficiency and quality, their application needs to be formalized. The core reason for this is twofold: first, SAV's IT infrastructure requires a synchronous connection between digital infrastructure systems, data, audit application software, and auditors' usability; and second, instructions for applying RBA in a specific field may be unsuitable for application across audit fields. After consulting with several experienced state auditors, it is apparent that using quantitative criteria in an audit with numerous audit contents will pose a challenge for state auditors. Furthermore, guidance on materiality and risk determination is primarily based on international practices and experiences rather than on data collected and analyzed from audited entities in Vietnam. Therefore, there is a need to accurately identify risks and audit materialities when applying RBA.

According to a study conducted by Le et al. [25], work pressure has a negative influence on the use of RBA by independent auditors. However, this outcome is not valid for state auditors. This difference can be attributed to the fact that state auditors enjoy more independence in selecting the audited entity, and determining the objectives, content, and scope of the audit. In comparison to independent auditors, state auditors face less pressure and have more flexibility in terms of audit time and report release time. Moreover, they have more authority to collect records, documents, and audit evidence.

6- Conclusion

This study provides empirical evidence that the risk of the audited entity and competitiveness among state auditors positively influence the application of RBA. Further, these factors have a positive relationship with SAV's audit quality. Meanwhile, IT application and work pressure do not have a statistically significant relationship with RBA application and audit quality. The results echo the theoretical research model and previous research results in the context of the independent audit, which show similar results for SAV. Therefore, the application of RBA depends mainly on the risks of the audited entity; the more accurate the identification and assessment of risks from the audited entity, the more effective the application of RBA, thereby contributing to ensuring the quality of the SAV. Besides, the research also shows that competition positively affects the effective application of RBA. This study makes the following recommendations for the SAI to conduct efficient and effective audits using RBA:

Firstly, it is important to modify the RBA guidelines to suit each audit field and the size of the audited entity. The guidelines for applying RBA need to be tailored according to the characteristics of each audited entity. Instructions for applying RBA should be based on data from risk assessment results from previous audits.

Secondly, SAV should establish regulations for assessing and evaluating audit results for each auditor and field. It is important to acknowledge new audit findings or the achievement of audit objectives in complex audits. This will encourage the use of RBA and enhance audit quality.

Thirdly, there is a lack of uniformity in IT infrastructure; the implementation of IT and RBA in certain audit areas is not feasible, hindering the SAV's audit quality. In order to overcome this barrier, RBA guidance needs to be tailored to specific audit areas.

6-1- Limitations

This study does not take into account certain factors that have been noted in research on independent audit firms, which can promote research development. These factors include auditor characteristics and the characteristics of auditing firms. Behavioral studies of independent auditors, such as professional skepticism, auditor independence, and professional judgment, are also important. This limitation suggests directions for future research. In addition, the concept of audit quality needs to be consistently understood, measured, and evaluated. Therefore, more research is required to develop a conceptual model of audit quality in the public sector.

7- Declarations

7-1- Data Availability Statement

The data presented in this study are available in the article.

7-2- Funding

This work was supported by the Industrial University of Ho Chi Minh City.

7-3- Institutional Review Board Statement

Not applicable.

7-4- Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

7-5- Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the author.

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