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EFFECTS OF AUDIT PROFESSIONAL SKEPTICISM ON AUDIT EFFICIENCY AND AUDIT SUCCESS

ผลกระทบของความชาญฉลาดในการสังเกตและสงสัยเยี่ยงผู้ประกอบวิชาชีพสอบบัญชีกับประสิทธิภาพการสอบบัญชีและความสำเร็จของการสอบบัญชี

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บทคัดย่อ

การศึกษานี้มีวัตถุประสงค์เพื่อตรวจสอบผลกระทบของความชาญฉลาดในการสังเกตและสงสัยเยี่ยงผู้ประกอบวิชาชีพสอบบัญชีต่อความสำเร็จของผู้สอบบัญชีรับอนุญาต (CPAs) ในประเทศไทย ผ่านผลกระทบของประสิทธิภาพการสอบบัญชีและเครื่องมือและเทคนิคการตรวจสอบโดยใช้คอมพิวเตอร์ช่วย (CAAT) และผลกระทบของความชาญฉลาดในการสังเกตและสงสัยเยี่ยงผู้ประกอบวิชาชีพสอบบัญชีต่อประสิทธิภาพการสอบบัญชี โดยเก็บรวบรวมข้อมูลรวบรวมข้อมูล จากกลุ่มตัวอย่างคือ ผู้สอบบัญชีรับอนุญาตแห่งประเทศไทย 610 คน ผลการวิจัยพบว่า ผลลัพธ์ของค่าสัมประสิทธิ์เส้นทางและการทดสอบสมมติฐานแสดงให้เห็นว่า ความชาญฉลาดในการสังเกตและสงสัยเยี่ยงผู้ประกอบวิชาชีพสอบบัญชีมีผลกระทบทางบวกอย่างมีนัยสำคัญกับประสิทธิภาพการสอบบัญชี นอกจากนี้ ประสิทธิภาพการสอบบัญชียังส่งผลเชิงบวกอย่างมีนัยสำคัญต่อความสำเร็จในการสอบบัญชี ดังนั้น ความชาญฉลาดในการสังเกตและสงสัยเยี่ยงผู้ประกอบวิชาชีพสอบบัญชีจึงส่งผลกระทบทางอ้อม

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ต่อความสำเร็จในการสอบบัญชี อีกทั้งประสิทธิภาพการสอบบัญชียังเป็นตัวกลางส่งผ่านความสัมพันธ์ระหว่างความชาญฉลาดในการสังเกตและสงสัยเยี่ยงผู้ประกอบวิชาชีพสอบบัญชีของการศึกษานี้ อย่างไรก็ตาม เครื่องมือและเทคนิคการตรวจสอบโดยใช้คอมพิวเตอร์ช่วยเป็นตัวกลาง และค่าสัมประสิทธิ์สัมพันธ์ระหว่างความชาญฉลาดในการสังเกตและสงสัยเยี่ยงผู้ประกอบวิชาชีพสอบบัญชีกับเครื่องมือและเทคนิคการตรวจสอบโดยใช้คอมพิวเตอร์ช่วย มีผลเชิงบวกอย่างมีนัยสำคัญต่อประสิทธิภาพการสอบบัญชี

ABSTRACT

This study aimed to examine the impact of audit professional skepticism on the success of Certified Public Accountants (CPAs) in Thailand through the mediating effects of audit efficiency and computer-assisted audit tools and techniques (CAATs), and the moderating effect of audit professional skepticism on audit efficiency. A total of 610 CPAs were chosen as the sample, and the data were collected. The results of the path coefficients and hypothesis testing showed that audit professional skepticism played a positive significant role in determining and driving audit efficiency. Audit efficiency also positively affected audit success; thus, audit professional skepticism indirectly impacted audit success. Additionally, audit efficiency was a mediator of audit professional skepticism–success relationships in this study. However, computer-assisted audit tools and techniques were moderators, and the coefficient of interaction between audit professional skepticism and computer-assisted audit tools and techniques had a positive significant effect on audit efficiency.

Keywords: Audit Professional Skepticism, Audit Efficiency, Audit Success, Computer-Assisted Audit Tools and Techniques

INTRODUCTION

By completing work in accordance with the Federation of Accounting Professions' norms, the auditor is responsible for auditing and certifying accounts. The auditor must determine whether he or she has gained reasonable assurance that financial statements are free of substantial misrepresentation. Whether a conclusion is reached owing to fraud or error must be based on the acquisition of sufficient acceptable audit evidence. Individually and collectively, uncorrected inaccuracies are significant. According to a 2015 event involving Toshiba, a large Japanese electronics manufacturer, the company's exaggerated profits were

a consequence of seven years of accounting renovation (BBC, 2018). This occurs because the auditor conducts an audit without professional oversight or suspicion, failing to certify financial statements that provide users with financial statement confidence that business operations are growing and becoming more complex. To accommodate more complicated and challenging financial statement audits, auditors must make adjustments, including modifications in the auditing practice to make it more efficient. The auditor must prepare and conduct the audit with professional skepticism and observation, knowing that certain conditions may result in serious misstatements of financial statements. The auditor must use professional accountancy judgment to maximize the audit's performance to boost the reliability of financial statements for users and those involved.

Professional observation and skepticism are crucial in evaluating audit evidence. Doubts regarding conflicting audit evidence, credibility of paperwork and responses acquired through queries, and other information obtained are among the concerns raised by careful observation and professional suspicion. The information obtained from management and individuals in charge of managing observations and professional skepticism is also evaluated for adequacy and appropriateness. Audit evidence gathered in a variety of situations, such as when fraud risk elements are present, and a single, vulnerable to fraud piece of evidence is the only supporting piece of evidence for material amounts in the finance statement (FAP, 2012). The application of professional skepticism contributes to the auditing of financial reporting credibility and the application of professional judgment in the recognition of audit risks, resulting in sufficient and suitable audit evidence. According to professional standards, performance is correct, as is the trustworthiness of financial statements. As a result, an auditor's ability to observe and suspect has an impact on the audit's outcome. In this study, the ability of the auditor to raise doubts and apply judgment in analyzing situations that may reveal probable misstatements is defined as intelligence in observation and professional skepticism from errors or fraud, as well as a thorough examination of the audit evidence.

RESEARCH QUESTIONS

1. How does audit professional skepticism influence audit efficiency, (a) audit report proficiency, (b) audit evidence quality, and (c) audit information reliability?

2. How does audit efficiency influence audit success?

3. How does computer-assisted audit tools and techniques (CAATs) moderate the impact of audit professional skepticism on audit efficiency?

RESEARCH OBJECTIVE

The main objective of this study are (1) to investigate the effects of professional skepticism on audit efficiency, (a) audit report proficiency, (b) audit evidence quality, and (c) audit information reliability, (2) to investigate the effects of audit efficiency on audit success, and (3) to examine the impact of computer-assisted audit tools and techniques (CAATs) moderate the impact of audit professional skepticism on audit efficiency.

RESEARCH CONTRIBUTION

The investigation of the effects of variables—auditors' skepticism and awareness of fraud—on auditors' professional skepticism distinguishes this study from earlier ones. For instance, Carpenter and Reimers (2013) examined the impact of an auditor's skepticism on the evaluation of fraud risk and the choice of suitable audit techniques using Nelson's (2009) model. Additionally, this study supports the conclusions of other studies that learning about fraud may make an auditor more skeptical. Additionally, this study helps standard-setters, auditors, and scholars better understand how knowledge of fraud plays a role in maintaining and enhancing auditors' skepticism. Moreover, the significant problem of understanding how big data can be used to help decision-making in audit sets this study apart from others. Several parties are interested in the findings of this study. Regulators and standard-setters gain an understanding of how audit professional skepticism impacts the caliber and credibility of auditing. The outcomes demonstrate how an auditor's conduct is influenced by changes in the competitive environment and technological disruptions. Care must be taken when introducing potential regulatory changes because, in certain cases, they could actually reduce audit quality. Additionally, the outcomes might aid auditors in deciding the level of audit quality they will adhere to, particularly regarding new clients, as well as their audit data analytics strategy. Investors interested in learning how changes in the audit market affect audit quality may also find the study to be of interest.

The remainder of this paper is organized as follows. Contingency theory is explained in the next section, which also explains research hypotheses. The third section covers the data and the study technique; the fourth section provides the empirical findings; and the last section concludes.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The Contingency Theory

One of the management theories, contingency theory has been widely used as a basis for examining the characteristics of the auditors and is a collection of ideas that is appropriate between the auditor's strategy and behavior in making decisions that lead to the performance of an individual in business. This study applies agency theory to audit success. The practice of the corporate base that has been adopted up to this point is supported by agency theory. When a party (principal) employs a different party (agent) to deliver a service and, in doing so, delegated authority to produce audit success in this study, agency connections are established (DeAngelo, 1981). Moreover, contingency theory offers fundamental knowledge of an organization's situation and has a wide range of consequences for organizational performance (Shonhadji and Maulidi, 2022). The fundamental tenet of contingency theory is that an organization's optimal organizational structure is determined by the environment in which it functions. This theory, a management concept, focuses on locating situational factors that hinder the accomplishment of organizational objectives (Lou and Donaldson, 2013). When discussing environmental uncertainty, factors that could have a positive or negative impact on the achievement of organizational goals are frequently mentioned. However, according to the conventional understanding of risk, it typically has negative connotations and causes issues in any organization. Undoubtedly, mismatches between an organization's structure and its circumstances have been well investigated, and they can lead to poor performance or even unethical behavior (Fisher, 1998). Practically speaking, some researchers claim that environmental uncertainty negatively affects an organization's ability to remain viable (Duncan, 1972), and they argue that the board affects auditors' program planning and risk evaluations (Cohen *et al.*, 2017). Organizational theorists emphasize that organizations must adapt to their environment to stay viable. Organizational context has an impact on organizational design in this area of contingency research. The fact that technology has been regarded as a critical component of this process for organizational performance and as a mediating construct of the fit between the company and its environment is equally noteworthy, as well as among organizational sections. Technology can be useful in spotting fraudulent and criminal deception, which are getting tougher to grasp, follow, expose, and avoid, in connection with fraud prevention and detection. The internal control framework recommended by the COSO (control environment, risk assessment, control activities, information and communication, and monitoring) can improve the likelihood of an entity

achieving its objectives and adapt to changes in the business and operating environments to consider the changing business environment and rising shareholder interest. Therefore, the conceptual framework of this study (Figure 1) can be explained by contingency theory because of the complexity and diversity of today's industry, which creates a variety of working conditions for auditors and necessitates them to make judgments based on analytical data. The challenge in each case is to obtain clear and dependable financial information while maintaining accuracy and cost-effectiveness.

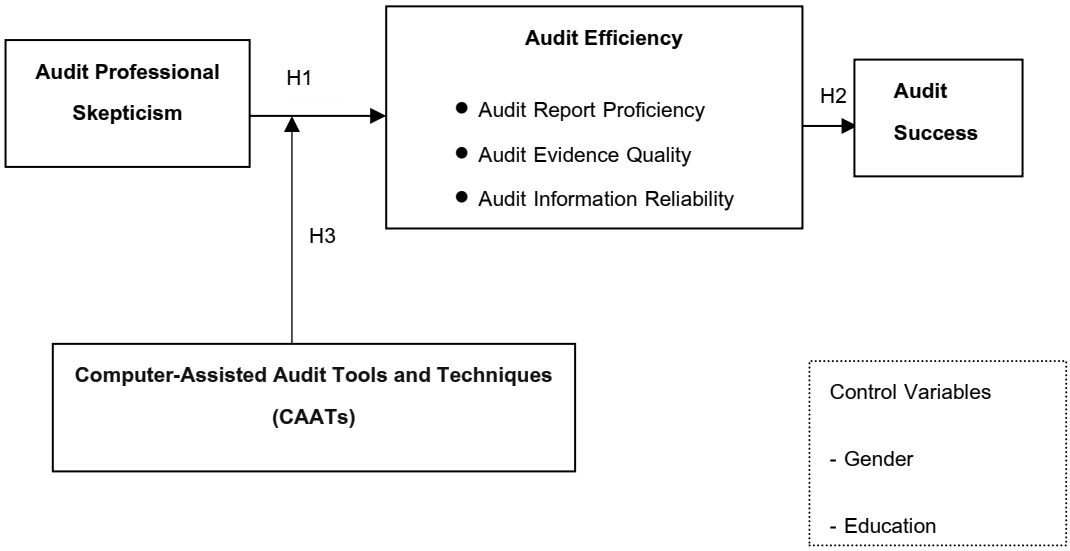

Figure 1: The Conceptual Model

Audit Professional Skepticism

In general, professional skepticism refers to a professional's inner disposition to doubt and is associated with circumstances that could affect their ability to critically evaluate errors, fraud, or misstatements (Raziūnienė, 2018). Given the continued complexity and increased need for estimation, subjectivity, and judgment in accounting-related transactions, professional skepticism is a major topic of attention in the auditing profession (Dickey *et al.*, 2022). Auditing standards explicitly state that an audit should be designed and carried out with a professional skeptic mindset and frequently mention professional skepticism. The Public Company Accounting Oversight Board (PCAOB, 2013), in its statement, declares categorically that the standards entail technical training, auditor competency, independence, and the use of appropriate professional care, including professional skepticism. Additionally, revenue recognition and the risk of fraud brought on by management overriding controls must be

presumptively substantial risks for every audit, according to auditing standards. To audit these areas, the auditor must have a thorough awareness of how bias affects judgment, as well as consider data obtained through encounters with client staff (Dickey *et al.*, 2022). The presumptive doubt stance is consistent with a great desire to comprehend people's motivations and biases. Therefore, believe that the behavioral component of professional skepticism is in line with the presumptive doubt theory. According to, previous research, such as Che *et al.*, (2021), Donelson *et al.*, (2020), Mardijuwono and Subianto (2018), professional skepticism is the mindset of an auditor when performing audit assignments; this mindset comprises a mind that constantly queries and assesses audit evidence critically and independently. Moreover, Rapley *et al.* (2021) said that to acquire a reasonable certainty that serious misstatements or significant inaccuracies in the data will be found, whether due to mistakes, fraud, unlawful acts, or regulatory violations, an auditor must adopt a professional skepticism attitude during an inspection. In addition, professional skepticism is demonstrated by auditor judgements and conclusions that, subject to the auditor's informational resources, reflect a heightened appraisal of the possibility that an assertion is false. Furthermore, professional standards define professional skepticism as existing when the auditor neither believes that management is dishonest nor anticipates unquestionable honesty (AICPA, 2011).

PCAOB (2013) warned that auditors have not recently demonstrated sufficient professional skepticism. Additionally, the audit industry’s recent run of ethical transgressions has been linked to a weakening of the profession’s key beliefs, particularly professional skepticism (Hurtt *et al.*, 2013). Hence, professional skepticism, which is viewed as an essential auditor quality, includes asking probing questions and critically evaluating audit evidence (Chen *et al.*, 2008). This has accountability implications and is essential for ensuring high audit quality (Hurtt *et al.*, 2013). Hurtt *et al.* (2013) indicated that an auditor with the right amount of skepticism produces high-quality audit work, whereas one with a low level of skepticism provides insufficient audit planning and fails to address the real risks that contribute to low-quality audit work. According to Nolder and Kadous (2017), when performing an audit, auditors must be cautious in determining the validity of the evidence presented. When doubtful, auditors challenge the evidence presented and consider alternative sources of evidence to determine whether the information provided by a client's management is accurate (IAASB, 2012). Regulatory organizations consider strengthening auditors’ skepticism essential to raising audit quality. One of the most crucial aspects of auditing and quality is auditors’ professional skepticism. The prerequisites for applying a skeptical mindset when evaluating audit evidence are outlined in auditing standards. Professional skepticism is an essential component that is overlooked when audit failures occur. The scope of the audit may need to be enlarged and

there may be an overabundance of audit resources if the auditor's level of suspicion is too high. As a result, using professional judgment and skepticism is essential to ensure the caliber of audit work and impact the dependability of audit performance. In this study, we define audit professional skepticism as an auditor's ability to plan audits with discretion and decide whether to look for and weigh relevant evidence under circumstances that include logical questioning, cautious suppositions, methodical study, and situation-appropriate decision-making. It refers to the capacity to accurately diagnose and categorize events that may have an impact on how information is presented and contrasted with important material facts, as well as the right situational response to lower errors and improve audit performance.

Audit Efficiency

The performance of an audit is required because the auditor must employ strategies to guarantee that the job is accurate, timely, and of high quality in accordance with the auditing requirements. The efficiency of an auditor can be determined by how well they can accomplish their duties in compliance with the applicable auditing standards in Thailand and internationally, which will ultimately improve their efficiency (Kristian, 2019).This study defines audit efficiency as the process of assessing the efficiency of audit practice controls that create a sufficient level of confidence in accordance with professional standards and the accomplishment of audit objectives. Auditor effectiveness, in particular, is a quality control tool to improve prior operations by counterchecking to strengthen proof of dependability for fully supporting audit reports and completing the audit work. As mentioned above, the three key elements of an efficiency audit are audit report proficiency, audit evidence quality, and audit information reliability. First, for audit report proficiency, CPAs must provide an audit report to convey the findings of their job once the audit information relevant to the amount of money is correctly and adequately acquired (Lin *et al.*, 2011). This is accomplished by auditors accurately expressing their views considering significant, relevant financial statement facts. As a result, the report's value reflects business dealings and occurrences in a trustworthy financial statement for stakeholders (Leventis *et al.*, 2005). As a result, audit reports become proficient and efficient (Habib and Bhuiyan, 2011). Additionally, an audit report serves as a product that interested parties can acknowledge as adhering to commonly recognized guidelines for excellent audit performance (Habib and Bhuiyan, 2011). According to Habib and Bhuiyan (2011), audit efficiency is increased by correcting audit perspectives and reliable audit reports.

The next dimension of audit efficiency is audit evidence quality, which is the information gathered by CPAs that is compatible with generally accepted audit standards (GAAS) for an audit summary. Such audit work-related evidence is reasonable and suitable for

developing audit opinions (IFAC, 2009). The information used by CPAs for the summary of their audit conclusions is referred to as audit evidence in the ISA 500. Audit evidence refers to data from financial records used to create financial statements and other data. In the ISA 200, auditors must be reasonable and confident that the evidence acquired is sufficient and appropriate. The financial statement must provide adequate evidence to sustain the CPAs' exceptions; the CPAs must decrease the risk of an audit opinion. Therefore, the efficiency of accounting and control systems is guaranteed by sufficient and appropriate audit evidence gained through effective audit standards (Chang *et al.*, 2019; Cowton, 2009). For inconsistent and insufficient evidence, CPAs should broaden new auditing practices (Chang *et al.*, 2019; Cowton, 2009). According to commonly acknowledged standards, the term "audit evidence quality" in this document refers to the sufficiency and suitability of the criteria employed to be consistent with the remarks.

The last dimension of audit efficiency is the reliability of audit information related to CPAs' audit work and the protection of stakeholders' interests. This includes the assurance that a financial statement is provided without contrasting information with pertinent facts. Financial statements are trustworthy and free of bias in supporting an audit report (FASB, 1980). Additionally, the financial report's credibility and the accounting system utilized to prepare the financial statements are supported by CPAs' audit work (DeZoort *et al.*, 2008). Regarding relevance and faithful representation, dependability emphasizes the significance of the fundamental qualitative aspects of financial information, especially the conceptual framework that underpins the relevance and expectation assessment of users with compensation information (Watts and Zimmerman, 1986). This information includes information that stakeholders learn through ongoing audit procedures and comments made after an auditor acknowledges the inherent limitations of the engagement (DeZoort *et al.*, 2008). This prompts the idea of using audit report expertise and audit performance to distinguish decision-making (DeZoort *et al.*, 2008). This study verifies the accuracy of the information as a focus of the ongoing audit procedure in accordance with helpful user comments. Based on these rationales, the following hypothesis is formulated:

H1: Audit professional skepticism is positively related to audit efficiency, (a) audit report proficiency, (b) audit evidence quality, and (c) audit information reliability.

Audit Success

For society to function properly and ensure that the public receives trustworthy information, auditing regulation is essential (Baker *et al.*, 2014). Additionally, auditors must use

strategic thinking and incorporate efficiency into the auditing process because of external environmental restrictions and the requirement for consistent regulatory processes in global financial markets (Lacroix *et al.*, 2012). Protecting one's interests from stakeholders, investors, and owners is the aim of an audit (Schelker, 2012). The road to attaining a goal is a deep reservoir of the expertise, skills, and attitudes that auditors possess. Expert auditors can adapt their procedures to better fit changing conditions (Bol *et al.*, 2018). Additionally, they can stop or identify substantial misstatements in a client's financial statements using their knowledge of accounting and auditing standards (Ritchie and Khorwatt, 2007). When audits are successful, financial statement users have confidence in the accuracy and integrity of the information they receive. The achievement of the audit process in accordance with professional standards to provide confidence and approval by all stakeholders is referred to in this study as "audit success" (Bol *et al.*, 2018). Professional auditors' ability to successfully implement audit procedures impacts their level of confidence in financial statements. The auditor also believes that good audit quality enables him to accomplish his/her goals (Peecher *et al.*, 2007). In this study, audit success refers to the audit process outcome of accomplishment that performs according to professional standards in order to provide assurance, and acceptance by all stakeholders. Moreover, the ability to measure and recognize the elements of financial statements. As well as being able to choose effective criteria for measuring value in financial statements. Thus, audit success is considered a key outcome of audit performance efficiency. Based on these rationales, the following hypothesis is formulated:

H2: Audit efficiency is positively related to audit success.

Computer-Assisted Audit Tools and Techniques as Moderating Effect of Audit Professional Skepticism and Audit Efficiency

General controls and application controls are two categories into which information technology (IT) controls in e-systems can be divided. The main technological tools for internal auditors are computer-assisted audit tools and techniques (CAATs) (Coderre, 2009). Application control auditing with CAATs is a typical practice (Hall, 2010). To accomplish the internal audit aim, CAATs consolidate data from numerous systems and databases and simplify the analysis. Other problems for which CAATs can be utilized include accounts payable, accounts receivable, anti-money laundering, banking compliance, task segregation, and order-to-cash procedures. Additionally, the goals of continuous monitoring and auditing can be achieved using CAATs to construct scripts for automated audits (Zhang, 2019). The use of CAATs may provide several benefits over the conventional audit. Gathering sample

datasets and arriving at conclusions about the transaction population is the first step in a typical audit. On the other hand, CAATs give auditors the opportunity to evaluate all data and transactions, leading to more complete tests and improved audit proof (Singleton, 2006). Second, in contrast to conventional audits, CAATs give auditors the chance to quickly evaluate all data and transactions, providing them with more time to carry out detailed risk assessments. Consequently, auditors who are aware of these risks are more concentrated and effective (The World Bank, 2017). The value of using computerized approaches in the auditing process has been established in earlier studies. They have also carefully examined many aspects that influence how external auditors use CAATs. To determine the automated tools that internal auditors most frequently use and to examine the factors impacting the use of audit software, Dias and Marques (2018) used survey questionnaires on 51 internal auditors in Portugal. They discovered that most auditors employed a company-developed internal tool. This shows that businesses choose to invest in internal software to ensure the efficient use of company resources while coordinating tool functionality with business goals and strategy. Additionally, their analysis showed a connection among a larger internal audit department, audit experience, the presence of CAATs in the firm, and the increased utilization of IT technologies to support auditing. Nevertheless, few studies have examined how using CAATs may impact audit performance. For example, Bierstaker *et al.* (2014) stated that because CAATs promise to increase audit efficiency and efficiency, auditor usage of them is crucial. Kristian (2019) examined the impact of the use of computer-assisted audit techniques (CAAT), professional ethics, and auditors' motivation on their performance. Kristian (2019) concluded that auditor performance was significantly impacted by the use of CAAT and professional ethics. Meanwhile, the motive of the auditor had little impact on output. Additionally, public accounting firms (KAP) should give auditors more diverse assignments to broaden their knowledge. As a result, the auditor's performance would improve. Samagaio and Diogo (2022) found that internal auditors seldom use CAATs when performing their duties. The findings of our study demonstrate that the use of CAATs by internal auditors has a significant and beneficial impact on fraud detection in the purchase-to-pay business process, and the type and size of the company have no bearing on the strength of this relationship. This study adds to prior research and offers guidance to practitioners regarding actions that can increase the use of CAATs in internal audits to improve business sustainability. Hence, this study examines CAATs as moderator variables that influence the relationship between audit efficiency and audit professional skepticism. Based on these rationales, the following hypothesis is formulated:

H3: Computer-assisted audit tools and techniques (CAATs) moderate the impact of audit professional skepticism on audit efficiency.

METHODOLOGY

Certified public accountants in Thailand are the key informants and sample of the study. They investigate and certify financial statements. CPAs in Thailand who were willing to share contact information from the Federation of Accounting Professions of Thailand's database (FAP, 2022) were chosen; thus, 1,980 CPAs were chosen for this study to offer different contributions and implications to existing auditing literature. The Human Research Ethics Committee at Rajamangala University of Technology Lanna (RMUTL-IRB 087/2022) approved the data collection for this study based on the criteria of the Declaration of Helsinki and The Declaration of Helsinki and International Conference on Harmonization in Good Clinical Practice (ICH-GCP). Regarding the questionnaire mailed, 610 responses out of 1,980 were received (30.80%). The response rate of the mail questionnaire with an appropriate follow-up procedure, if greater than 20%, is considered acceptable, according to Aaker *et al.* (2001).

Survey non-response is a likely source of bias because the size of the non-responding group expands as it rises. As recommended by Armstrong and Overton (1977), a comparison of the first and second waves of data was utilized to confirm and test any non-response bias, as well as to identify and safeguard potential issues with non-response mistakes. The variables employed to test non-response bias in this study included gender, age, education, and audit experience. The differences between the variables were confirmed using the t-test. A t-test was used to confirm the differences between the variables. In this regard, neither procedure revealed significant differences because gender ($t = 0.150$, $p > .05$), age ($t = 0.153$, $p > .05$), education ($t = 0.148$, $p > .05$), and experience in audits ($t = 0.152$, $p > .05$) were not statistically significantly different between the first and second groups at the 95% confidence level. Except for gender, age, educational attainment, and audit job experience, all items were evaluated using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). These construct measurements were self-developed from the published literature. This study included a set of control variables following prior research on audit performance or audit quality (Anagnostopoulou and Tsekrekor, 2017; Sonu, Choi, Lee, and Ha, 2016; Gul *et al.*, 2013). The control variables were gender, education, and auditing experience. Dummy variables male = 0 and female = 1 were used to determine gender (GD).

Additionally, education (ED) was measured using a dummy variable with a bachelor's degree or equivalence = 0 and a higher bachelor's degree = 1 as a measure of an auditor's level of education. Finally, audit experience (AE) was calculated using a dummy variable with the following values: less than 10 years = 0, equal to or higher than 10 years = 1, and greater than or equal to 10 years = 1.

To analyze the data of this study, the research linkages among CPAs in Thailand were examined. For data analysis, a structural equation model (SEM) was used, which is regarded as an appropriate way to assess the correlations between these variables. To examine the direct, indirect, and moderating impacts of the research relationships, multiple regression analysis is also used (Montani *et al.*, 2017). The moderating effects of individual learning on the aforementioned relationships can be confirmed with the aid of this study.

RESULTS AND DISCUSSION

Table 1 shows that the quality assurance of the research tools began with content analysis. The tools were sent to three experts to examine accuracy, clarity of language, and coherence between questions and objectives to calculate the index of congruency (IOC). The result of the assessment from three experts was between 0.67 and 1, which meets the criteria, and correction of the tools was performed based on the experts' recommendations (Rovinelli and Hambleton, 1976).

Table 1: The Analysis of Structural Reliability

Variable	**Question**	**Item-Total Correlation**	**Alpha Coefficient**	**Composite Reliability**	**Average Variance Extracted**
Audit Professional Skepticism (APS)	9	0.73–0.79	0.96	0.88	0.52
APS_1		0.73			
APS_2		0.76			
APS_3		0.78			
APS_4		0.78			
APS_5		0.74			
APS_6		0.75			
APS_7		0.76			
APS_8		0.79			
APS_9		0.74			

Audit Efficiency (AE)	5	0.55–0.66	0.88	0.89	0.56
AE_1		0.55			
AE_2		0.67			
AE_3		0.60			
AE_4		0.78			
AE_5		0.69			
Audit Success (AS)	4	0.54–0.63	0.82	0.86	0.58
AS_1		0.70			
AS_2		0.75			
AS_3		0.71			
AS_4		0.72			
Computer-Assisted Audit Tools and Techniques (CAATs)	3	0.66–0.72	0.92	0.86	0.49
$CAAT_1$		0.71			
$CAAT_2$		0.72			
$CAAT_3$		0.66			
$CAAT_4$		0.69			

Source: Authors

Then, the corrected tools were tested on non-samples of 50 people to find item-total correlations with a score of more than 0.4 (Kline, 1993) and score selection was performed to analyze the reliability of the questionnaires, as shown in Table 1. It was found that reliability has a Cronbach's alpha coefficient between 0.82 and 0.95. When it exceeds 0.7, every component has an acceptable level of reliability (Hair *et al.*, 2006). In addition, the composite reliability is between 0.87 and 0.95, which is more than 0.7, thereby indicating that the set of observable variables can measure structural latent variables with high reliability. Furthermore, the average variance extracted is between 0.49 and 0.58, which is higher than 0.4. Accordingly, the error variance is lower than that of the observable variables. In summary, the measurement model used in this study had good structural reliability. An analysis of the causal factor model's fit index of audit professional skepticism, audit efficiency, audit success, and computer-assisted audit tools and techniques is indicated by the index examining the absolute quality of the fit measure (Lee and Moghavvemi, 2015) using specified criteria. The model is concordant with the empirical data of Hair *et al.* (2006) and Kline (1993) collected from the samples, as presented in Table 2. When considering the criteria of every key performance indicator, the empirical data and factor analysis model are perfect goodness-of-fit.

Table 2: Results of Analysis of Model Goodness-of-Fit

Quality of Fit Measure	Model's Fit Based on Criteria	Statistics	Results
Chi-square/df	Less than 3.00	1.78	Passed
p-value of chi-square	More than 0.05	0.24	Passed
GFI	More than 0.90	0.97	Passed
AGFI	More than 0.90	0.98	Passed
CFI	More than 0.90	0.99	Passed
RMSEA	Less than 0.05	0.04	Passed

(Criteria recommended value refers to Lee and Monghavvemi, 2015)

Table 2 presents statistics of the goodness-of-fit and component analysis model. It consists of chi-square that evaluates the consistency between the model and data. The calculated value is 1.78, which is less than 3. It shows that the model is fit for the empirical data at an acceptable level (Loo and Thorpe, 2002). In addition, the fit between data and model is indicated by GFI, AGFI, and CFI. They are all more than 0.9, which demonstrates that the model is compatible with empirical data (Hair *et al.*, 2006). RMSEA is also popular for the measurement of the fit between the model and empirical data. The calculated value is 0.04, which is less than 0.05. It is at an acceptable level; therefore, the model is consistent with empirical data (Hair *et al.*, 2006).

Table 3 presents the results of the descriptive statistics and correlation matrix analyses of the variables. Multicollinearity might occur when the intercorrelation in each predicted variable is greater than 0.80, which is a strong relationship (Hair *et al.*, 2006). The correlations ranged from 0.31 to 0.60 for CPA samples at the $p < 0.01$ level. Therefore, multicollinearity may have occurred in this study. Thus, this study also tested the variance inflation factor (VIF). The results showed that the VIF was less than 10. Multicollinearity is not a serious problem if the VIF is less than 10 on the scale (Hair *et al.*, 2006). Thus, the conceptual model can be tested.

Table 3: Descriptive Statistics and Correlation Matrix Analysis

Variables	APS	AE	AS	CAAT
Mean	4.03	4.11	4.10	4.21
Standard deviation	0.50	0.46	0.51	0.59
Audit professional skepticism (APS)				
Audit efficiency (AE)	.43***			
Audit success (AS)	.38***	.53***		
Computer-assisted audit tools and techniques (CAAT)	.60***	.31***	.44***	

***p < .01

Moreover, Table 4 presents the results of the path coefficients and hypothesis testing. The results show that audit professional skepticism plays a significant role in determining and driving audit efficiency and is positively related to audit success. The results state that auditors ensure that audit professional skepticism increases audit efficiency and success, as well as the ability to identify important hazards, meet audit goals, and effectively mitigate potential risks.

Table 4: Results of Path Coefficients

Hypotheses	Relationship	Standardized Coefficients	Standard Error	t-value
H1	ADA→AE	0.37***	0.438	9.425
H2	AE→AS	0.36***	0.037	12.971
H3	ADA*CAATs→AE	0.29**	0.045	6.654

**p < .05, ***p < .01

Furthermore, professional audit skepticism may be used to design and define audit scopes that focus on knowledge and the ability to identify and organize an audit system efficiently and appropriately. Additionally, the ability to effectively identify problems and resolve problems in unfamiliar situations related to auditing. In addition, it has good knowledge of information technology in auditing and the ability to apply information technology. In accounting, the entity's operations in auditing, among other things, contribute to effective auditing, which is consistent with Hurtt *et al.* (2013), who indicated that an auditor with the right amount of skepticism would produce high-quality audit work. Moreover, Nolder and Kadous (2017) stated that when performing an audit, auditors must show that they have used caution in determining the validity of the evidence presented, which is a feature related to the auditor's ability to analyze non-systematic and systematic risks. Additionally, professional skepticism about analytics can verify 100% of a business transaction, reducing the limitations and risks of sample selection based on traditional audit methods, while also improving inspection quality. The auditor's most important concerns in the questionnaire were that audit data analytics are vital in an audit engagement and that the auditor must use it for professional gain. Therefore, Hypothesis 1 is fully supported.

Additionally, audit efficiency positively affects audit success. Thus, audit professional skepticism has an indirect impact on audit success. Audit efficiency is also a mediator of the relationship between audit professional skepticism and audit success for CPAs. The word over was obtained for the reader so that they could grasp it and save time analyzing the data, which is the information gleaned from the audit data analysis, resulting in audit success. Furthermore, the auditor must use clear language in the audit report, including the description

and terminology offered to the reader, as well as the presentation of the accounting report, for effective decision-making during the time period. Appropriateness is critical for the success of an audit. Audit success is achieved when an audit report is complete and has sufficient audit evidence, when constructive suggestions are made to benefit audited organizations, and when helpful content reports are provided to help audit firms improve. The findings of the study reveal that this study is consistent with the research of Kilgore, Radich, and Harrison (2011), who stated that audit quality is a key element that customers and users of audit reports will value. Such quality auditing attributes are collected from the auditor's audit to meet the needs of all parties accurately, thoroughly, and fairly. Additionally, confirm that when an auditor is capable of recognizing substantial misstatements using generally accepted auditing standards and principles, which helps to ensure the accuracy of the auditor's activities and reports, the auditor has attained audit quality. Therefore, Hypothesis 2 is fully supported.

Finally, Table 4 shows that CAATs as a moderator and the coefficient of interaction between audit professional skepticism and computer-assisted audit tools and techniques (APS*CAAT) have a positive significant effect on audit efficiency. In the disruptive technological era, big data is so important that data analytics must run concurrently with computerized approaches in the auditing process, as established by earlier studies. In accordance with Dias and Marques (2018), the majority of auditors employed a company-developed internal tool. This shows that businesses choose to invest in internal software to ensure the efficient use of company resources while coordinating tool functionality with business goals and strategy. Additionally, their analysis showed a connection between a larger internal audit department, audit experience, the presence of CAATs in the firm, and the increased utilization of IT technologies to support auditing. Most importantly, the prevention process to prepare for CAAT intrusion incidents helps ensure readiness and security in the use of information systems for audit work. As mentioned, they must be combined with audit professional skepticism to support audit efficiency and audit success. Moreover, consistent with Samagaio and Diogo (2022), the use of CAATs by internal auditors has a significant and beneficial impact on fraud detection in the purchase-to-pay business process, and the type and size of the company have no bearing on the strength of this relationship. This study adds to prior research and offers guidance to practitioners regarding actions that can increase the use of CAATs in internal audits to improve business sustainability. Therefore, Hypothesis 3 is fully supported.

CONTRIBUTIONS

Theoretical Contribution

The challenge in this study is to obtain clear and dependable financial information while maintaining accuracy and cost-effectiveness. The conceptual framework of this study can be explained by contingency theory because of the complexity and diversity of today's industry, which creates a variety of working conditions for auditors and necessitates them to make judgments based on professional skepticism. This study integrates the concepts of audit professional skepticism, efficiency, and success into the new conceptual model and investigates the relationships between these concepts. Moreover, it was verified that the pragmatic contingency approach offers fundamental knowledge of the organization's situation and has a wide range of consequences for audit success.

Practical Contribution

The findings of this study show that in a continuously changing environment, auditors must consider the ingenuity of professional skepticism to be successful in their auditing. It is stated that professional skepticism in the performance of an audit is due to the auditor's ingenuity that contributes to the success of the audit. Moreover, the use of CAATTs to support auditing and audit performance is crucial to improving the sustainability of businesses because computer-assisted audit tools and techniques promise to increase audit efficiency.

CONCLUSION

Audit professional skepticism is a key determinant of increased success of audit outcomes. Thus, this study examines the impact of professional skepticism on the audit success of CPAs in Thailand through the mediating effects of audit efficiency and the moderating effect of audit data analytics on audit efficiency. The results of the path coefficients and hypothesis testing show that audit professional skepticism plays a positive and significant role in determining and driving audit efficiency. Audit efficiency positively affects audit success; thus, audit professional skepticism has an indirect impact on audit success. Audit efficiency is also a mediator of the relationship between audit professional skepticism and audit success for CPAs. However, CAATTs were also moderators, and the coefficient of interaction between them and audit professional skepticism had a positive significant effect on audit efficiency. During the disruptive technological era, analytical assistance from technological transformation

data is very important. Auditors with greater focus and skill in technology can achieve outcomes, success, survival, and sustainability in auditing success.

DIRECTIONS FOR FUTURE RESEARCH

In considering the limitations of this work, its conceptual frameworks there is a need for future research. First, analytics are linked to the audit success elements in developing with testing moderator interaction, such as security in technology and technology transformation, which may be added to determine whether it has an impact on the relationship according to the conceptual model. Second, while the response rates in this study are acceptable, future research may seek to raise response rates by searching for and implementing a method of follow-up and extending the period for data collection. Moreover, this study is limited by the sample group of CPAs in Thailand, which is only one professional group from all professional accounting groups. Thus, tax auditors, bookkeepers, and internal auditors should be examined to provide a variety of perspectives.

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