

An Empirical Study of Auditors' Efforts, Audit Technology and Impact on Tax Auditors' Performance

(Kajian Empirikal Tentang Usaha Juruaudit, Teknologi Audit dan Pengaruhnya Terhadap Prestasi Juruaudit Cukai)

Mohmad Hazar Ahmad

Mazlina Mustapha

Yusniyati Yusri

Saira Kharuddin

(School of Business and Economics, Universiti Putra Malaysia)

ABSTRACT

The tax auditors' performance is crucial in determining the success of tax audit implementations conducted by tax administrators. This study explores how auditors' efforts and audit technology influence tax auditors' performance in the Malaysian context. The objective is to examine the influence of internal factors, such as auditors' effort and external factors, such as audit technology, on tax auditors' performance based on the attribution theory. Based on a quantitative approach, this research utilized survey questionnaires distributed to tax auditors ranked in executive level and above, with at least one year of tax audit experience from the Inland Revenue Board of Malaysia and the Royal Malaysian Customs Department, which handle direct and indirect taxes. The Structural Equation Modelling (SEM) was utilized for data analysis, revealing a significant and positive correlation between auditors' efforts, audit technology and tax auditors' performance. This study provides valuable insights for policymakers by identifying key factors that influence audit effectiveness and the performance of tax auditors. These findings can inform the development of targeted policies aimed at enhancing tax compliance and strengthening regulatory frameworks. Ultimately, this research serves as a vital resource for both practitioners and scholars interested in understanding and improving the effectiveness of tax audits within an evolving economic landscape.

Keywords: Auditors' effort; audit technology; task complexity; tax auditors' performance

ABSTRAK

Prestasi juruaudit cukai adalah penting dalam menentukan kejayaan pelaksanaan audit cukai yang dijalankan oleh pentadbir cukai. Kajian ini meneroka bagaimana usaha juruaudit dan teknologi audit mempengaruhi prestasi juruaudit cukai dalam konteks Malaysia. Tujuan kajian adalah untuk mengkaji pengaruh faktor dalaman, seperti usaha juruaudit, dan faktor luaran, seperti teknologi audit, terhadap prestasi juruaudit cukai berdasarkan teori atribusi. Berdasarkan pendekatan kuantitatif, kajian ini menggunakan soal selidik yang diedarkan kepada juruaudit cukai yang disenaraikan dalam peringkat eksekutif dan ke atas, dengan sekurang-kurangnya satu tahun pengalaman audit cukai daripada Lembaga Hasil Dalam Negeri Malaysia dan Jabatan Kastam Diraja Malaysia, yang mengendalikan cukai langsung dan tidak langsung. Structural Equation Modeling (SEM) digunakan untuk menganalisis data yang mendedahkan korelasi positif dan signifikan antara usaha juruaudit, teknologi audit dan prestasi juruaudit cukai. Kajian ini memberikan pandangan yang berharga kepada pembuat dasar dengan mengenal pasti faktor-faktor utama yang mempengaruhi keberkesanan audit dan prestasi juruaudit cukai. Penemuan ini dapat memberi panduan dalam pembangunan dasar yang ditujukan untuk meningkatkan pematuhan cukai dan mengukuhkan rangka kerja regulasi. Akhirnya, penyelidikan ini berfungsi sebagai sumber penting bagi pengamal dan akademik yang berminat dalam memahami dan meningkatkan keberkesanan audit cukai dalam landskap ekonomi yang sedang berkembang.

Kata kunci: Usaha juruaudit; teknologi audit; kerumitan tugas; prestasi juruaudit

INTRODUCTION

The self-assessment system (SAS) is a modern tool that simplifies tax return filing in many countries. The SAS increases taxpayer self-declaration, lowers management costs, and improves tax administration efficiency (Nguyen et al. 2020). However, SAS facilitates taxpayers in self-compliance tax declarations and permits evasion of transparent and lawful tax declarations. Non-transparent tax declarations may result in non-compliance, leading to tax revenue losses. Non-compliance due to tax avoidance and evasion is particularly acute in developing

countries, demanding greater attention from tax authorities. Therefore, most countries have strengthened tax management strategies to increase taxpayer compliance.

Tax administrations employ enforcement and prevention measures to combat non-compliance, employing tax audits as a common strategy to foster taxpayer compliance (Fatas et al. 2021). These audits contribute to revenue generation (Onoja & Iwarere 2015), impacting tax revenue collection (Ndenga & Ayuma 2015). They are essential in bolstering economic stability, curbing tax avoidance and evasion, increasing voluntary compliance awareness, and facilitating the retrieval of unpaid taxes (Mirera 2014). In line with Harelimana (2018), tax audits ensure accurate revenue collection, mitigate avoidance and evasion, enforce strict compliance, and boost voluntary adherence.

Organisations such as World Customs Organization (WCO) and World Trade Organization (WTO) advocate for audits over physical import and export inspections (World Customs Organization 2018). Audits ensure the accuracy of payments and compliance with laws. Tax audits are extensively employed globally to combat non-compliance and recover unpaid taxes. Research shows mixed but interconnected findings regarding tax audits' impact on compliance (Bedi 2016; Joulfaian 2000).

The effectiveness and success of tax audits hinge on the proficiency of auditors. Tax administrators rely on competent auditors for effective audit execution. Lase et al. (2021) highlight the need for auditors to meet expectations. The research underscores the critical role of auditor performance in audit task execution (Hussein & Hanefah 2013; Sulaiman et al. 2019) because inadequate performance not only hinders audit processes but also raises significant concerns about the overall effectiveness of audits (Kusumastuti et al. 2016).

Auditor performance is regarded as crucial to indicate the accuracy of audit tasks (Hakami 2024). In the context of tax audits, the tax auditors' performance is pivotal in ensuring tax audit success. Competent auditors play a critical role because their skills and expertise align with the objectives of tax audits, thereby enhancing overall effectiveness and achieving desired outcomes. The auditing profession is seen as a challenging and rigorous task due to the deadlines, workloads, pressure and many other reasons (Handoko & Wijaya 2020; Johari et al. 2019). This possibly impacts the auditors' performance. Hence, this study aims to examine the influence factors of tax auditors' performance, with a particular focus on auditors' efforts and audit technology.

The increase in regulations and complexity in audit tasks and taxation require more effort from the tax auditors. This contributes to the pressure on tax auditors to understand and manage the appropriate allocation for better performance. Efforts in tax auditing involve a thorough examination of financial records, adherence to regulatory requirements, and vigilance in detecting tax discrepancies and fraudulent activities. Therefore, the optimal level of auditors' efforts is one of the important factors that influence tax auditors' performance (Alissa et al. 2014).

With the rapid change and technological advances, tax authorities are constantly seeking new ways to ensure the effectiveness and efficiency of tax audits. The use of information technology and audit-based technology can help streamline the tax audit process while improving tax auditor performance. Since 2016, the volume of data such as business data, sales data, import/export data, and tax data has increased. This trend is expected to continue in the future. It is estimated that more than 90% of the world's data has already been generated (Marr 2018). The growing and rapid volume of data has forced auditors to equip themselves with state-of-the-art technology to analyse larger amounts of data than ever before in their audit work (ACCA 2019). Tax auditors are expected to conduct audits that are efficient, precise and accurate using auditing technology (Wicaksono et al. 2018).

This study provides valuable insights into the factors that can influence tax auditors' performance and offers practical recommendations for enhancing auditing practices in the face of evolving technological and regulatory landscapes. The contributions of this research extend to the field of taxation and society at large. It will enhance the understanding of how auditors' efforts and technology influence tax auditing performance, inform best practices for integrating technology effectively while maintaining high standards of effort, and support informed decision-making regarding technology investments in tax auditing. The findings of this study can influence tax policy and regulatory frameworks in Malaysia by providing evidence-based recommendations to enhance tax audit effectiveness. Specifically, they can lead to stronger compliance measures, improved training programs for tax auditors, and greater integration of technology in auditing processes. Additionally, the insights can help formulate clearer guidelines for tax reporting and promote transparency and accountability, ultimately fostering public trust in the tax system. By engaging stakeholders, these findings can support a more collaborative approach to tax policy, benefiting both taxpayers and the government.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

TAX AUDITORS' PERFORMANCE

Performance, defined as the successful execution of individual or collective tasks in alignment with organizational objectives while upholding ethical and legal standards (Basri et al. 2019; Jackson et al. 2018), holds paramount

importance in achieving tax administration goals. The effectiveness of tax auditors' performance is pivotal, serving as a cornerstone for the attainment of tax administration objectives.

The assessment of auditor performance stands as a critical aspect, ensuring accuracy in task fulfilment (Srimindarti et al. 2020). Sunyoto et al. (2017) underscored audit quality, quantity, and completion timeframe as principal criteria, while Ahmad et al. (2019) emphasized the volume of audit tasks.

Prior research efforts examining auditor performance have predominantly focused on internal, external, and operational audits (Alissa et al. 2014; Falola et al. 2018; Kusumastuti et al. 2016; Sanusi et al. 2018; Sunyoto et al. 2017). However, this study examines the performance of auditors in the context of tax audits, specifically looking at the influence of auditors' efforts and the use of audit technology.

Generally, a tax audit is treated similarly to a financial audit, as both processes involve gathering audit evidence and processing it to determine compliance with laws and regulations (Adediran et al. 2013). Despite the different environments in which these audits occur, both financial and tax auditors apply Generally Accepted Accounting Principles (GAAP) in similar ways (Blaufus et al. 2021). Research on the performance of tax auditors is limited, prompting a literature review that draws on prior studies related to auditors' performance in general. This study aims to assess tax auditors' performance and explore whether the theoretical frameworks used for general auditor performance apply to the realm of tax audit performance.

The performance of tax auditors can be understood through behavioural theories, particularly attribution theory. Developed by Fritz Heider, attribution theory explains that human behaviour is influenced by both internal and external factors. Internal factors are those within an individual's control, such as their abilities and effort, while external factors are outside their control, like job-related challenges (Widyakusuma et al. 2019).

In this study's context, the internal factor being examined is the auditors' personal effort, while the external factor is the audit technology they use. According to Suputra and Widhiyani (2020), both internal and external factors significantly impact an individual's work attitude and job commitment, ultimately affecting their performance. Attribution theory thus helps us understand how people make sense of their own and others' behaviours by identifying the underlying causes and reasons for their actions.

AUDITORS' EFFORTS AND PERFORMANCE

The field of tax auditing requires substantial time, specialized skills, and a strong commitment to high standards. Tax auditors conduct thorough reviews of audit evidence, such as financial records and statements, to ensure accuracy, regulatory compliance, and integrity in reporting. According to Christen et al. (2006), effort is the sustained exertion needed to complete tasks, with performance representing the outcome of this effort.

Effort in auditing can be divided into two key functions: enhancing performance and facilitating learning (Johari et al. 2012). For performance enhancement, factors like continuous engagement, increased focus, and clear direction play vital roles in improving auditor performance. Such focused effort not only builds individual expertise but also supports the core audit principles of transparency and accountability.

Several studies have demonstrated that effort influences tax auditors' performance (Usmany 2021). The studies show that effort influences the auditors' performance. Notably, Alissa et al. (2014); Iskandar et al. (2012); Sanusi and Iskandar (2007) found a significant impact of effort on tax auditor performance. However, Phan (2009) contradicted these findings, suggesting that effort does not significantly influence performance. Similarly, Handoko and Wijaya (2020) observed no positive impact on auditors' performance; the study highlighted the importance of auditors' efforts in tax audit activities although auditors' efforts do not significantly influence auditors' performance. Tax auditors are responsible for providing good and quality audit reports which require the appropriate effort.

Furthermore, Kohli et al. (2018) believe that an increase in effort leads to an increase in performance. However, the level of effort changes over time as a result of the auditing environments such as task complexity. In less complex tasks, tax auditors believe that successful performance will be achieved without exerting more effort. In contrast, highly complex tasks require an increase in effort to achieve successful performance (Alissa et al. 2014; Yeo & Neal 2008).

Additionally, Woo and Lim (2015) mentioned auditors' efforts subjected to the risk in audit activities. Auditors consider the audit risk and adjust their level of effort accordingly. Typically, high-risk audit activities require additional effort, such as acquiring more time to complete the audit tasks, as compared to less-risk with a minimal amount of effort.

The researchers assert that tax auditors demonstrate increased effort during task audits, which is positively correlated with their performance. This conclusion is substantiated by prior studies that reveal a significant relationship between effort and tax auditor performance, as well as by the principles of attribution theory. Notably, increased effort, an internal factor, is associated with enhanced performance among tax auditors. Based on these premises, the researchers propose the following hypothesis:

H₁ Auditors' effort positively influences tax auditors' performance.

AUDIT TECHNOLOGY AND TAX AUDITORS' PERFORMANCE

In tax audits, audit technology is called computer-assisted audit tools and techniques, commonly known as CAATs. Braun and Davis (2003) defined audit technology as automated software or applications used in tax audits. Adopting audit technology expedites and enhances the efficient auditing process (Braun & Davis 2003; Curtis & Payne 2014; Dowling & Leech 2007). Given the complexities of audit tasks, business risks, business environments and technological advancements, tax auditors must fully utilise audit technology.

In tax auditing, audit technology includes the use of computers, software and tools in carrying out tax audit activities. However, Drogalas et al. (2015) stress that tax auditors must have the appropriate knowledge and skills in audit technology and the ability of tax auditors to utilize audit technology. For instance, in IRBM and RMCD, tax auditors are expected to use audit technology such as Audit Command Language (ACL), Interactive Data Extraction and Analysis (IDEA) and ARBUTUS. The adoption of new technology, specifically in audit technology facilitates the auditing process and the tasks can be conducted efficiently and effectively while reducing time and expediting the process.

Audit technology has gained significance in accounting and auditing (Curtis & Payne 2014). It is a vital strategy for improving tax audits, thus affecting tax auditors' performance (Su et al. 2016). Pulliam et al. (2023) assert that auditing technology enhances competitiveness, efficiency and effectiveness. Consequently, comprehending the influence of auditing technology on tax auditors' performance is crucial.

Previous studies by Handoko and Wijaya (2020); Wicaksono et al. (2018) found that audit technology enhances auditors' performance. Contradictory, the study by Mohd-Noor et al. (2022) reported that audit technology did not influence auditors' performance. The study found that auditors should have adequate knowledge and skills in information technology, management and technical support to enhance auditors' performance. On the other hand, Ahmi et al. (2017) suggested that auditors should be equipped with information communication technology (ICT) tools and techniques used for tax auditing activities.

Audit technology enables the timely completion of audit tasks. Audit technology expedites the auditing process and reduces completion time (Marei & Iskandar 2019), a viewpoint supported by Mohd-Noor et al. (2022). Furthermore, Omoteso (2012) highlights technology's role in streamlining task completion challenges.

In addition, Allbabidi (2021) emphasizes the significance of technology in auditing, noting its role in enhancing audit quality from various perspectives. Therefore, the researchers posit that leveraging audit technology can improve tax auditors' performance, leading to the following hypothesis:

H₂ Audit technology positively influences tax auditors' performance.

RESEARCH FRAMEWORK

This study examines influencing factors on tax auditors' performance through the attribution theory. Allbabidi (2021) defines auditors' performance as the alignment between auditors' expectations and behaviours during audits to achieve desired outcomes. Additionally, Zeglat and Janbeik (2019) view performance as the result of individual behaviours.

Therefore, the attribution theory is deemed suitable for this study to explain the interplay between internal and external factors influencing individual performance (Muindi & Obonyo 2015). Within this framework, auditors' effort is considered an internal factor, while audit technology represents an external factor influencing tax auditors' performance (see FIGURE 1) (Aida 2021; Khairun et al. 2021; Martinko et al. 2007; Octaviani et al. 2020).

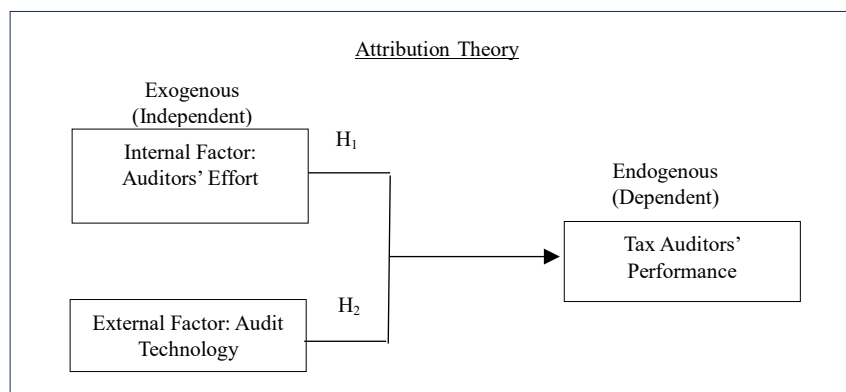


FIGURE 1. Conceptual framework

RESEARCH METHODOLOGY

RESEARCH INSTRUMENTS

The research instruments were adapted from previous studies and modified to suit the current study. Three constructs with their respective items were developed by combining exogenous constructs (auditors' effort and audit technology) and endogenous constructs (tax auditors' performance), as outlined in Table 1. These instruments underwent validation through pre-testing, involving academicians (supervisory committee) and tax auditors at managerial levels. The feedback received was incorporated to refine the instruments.

The final validated research instruments were used to develop survey questionnaires. Subsequently, the survey questionnaires were submitted to the Jawatankuasa Etika Universiti Putra Malaysia (JKEUPM) for research ethics approval.

TABLE 1. Research instruments

Constructs	Item Codes	Item Descriptions	Sources
AUDEFF	AUDEFF1	I have tried my best to complete the audit tasks.	(Iskandar et al. 2012)
	AUDEFF2	I could have done better had I used more effort.	
	AUDEFF3	I could have expended more effort had the audit tasks been more difficult.	(Christen et al. 2006)
	AUDEFF4	I have spent more time than I need to complete the audit tasks.	
	AUDEFF5	I always make an effort to improve my audit skills.	
	AUDEFF6	I work longer/overtime when necessary.	
	AUDEFF7	I believe that working hard is the key to being successful.	
	AUDEFF8	I put much effort into finding the best possible solution to my audit tasks.	
AUDTEC	AUDTECH ₁	I find that audit technology in auditing provides accurate information for decision-making.	(Miller et al. 2002) (Douglas & Milton 1997) (Veerankutty 2019)
	AUDTECH ₂	I find that the use of audit technology is needed due to the large volume of accounting transactions in electronic form.	
	AUDTEC3	I find that using audit technology reduces error rates in the audit process.	
	AUDTEC4	I find that using audit technology is important to remain competitive.	(Aziz & Isa 2017)
	AUDTEC5	I find that using audit technology in auditing would enable me to accomplish tasks more quickly.	
	AUDTEC6	I find that using audit technology would improve my job performance.	
	AUDTEC7	I find that using audit technology in my job would increase my productivity.	
	AUDTEC8	I find that using audit technology would enhance my effectiveness on the job.	
	AUDTEC9	I find that using audit technology would make it easier to do my audit tasks.	
	AUDTEC10	I find that using audit technology is useful in my audit tasks.	
	AUDTEC11	I find that using audit technology would help me to complete audit tasks efficiently.	
	AUDTEC12	I find that using audit technology minimises the risk of auditing.	
TAXAP	TAXAP1	I always manage to plan my work so that I finish it on time.	(Pedro et al. 2019)
	TAXAP2	I am able to set priorities and meet the deadline successfully.	
	TAXAP3	I am able to carry out my work efficiently.	
	TAXAP4	On my own initiative, I started new tasks when my old tasks were completed.	(Linda et al. 2014)
	TAXAP5	I took on challenging tasks when they were available.	
	TAXAP6	I work on keeping my job-related knowledge up-to-date.	
	TAXAP7	I work on keeping my work skills up-to-date.	
	TAXAP8	I come up with creative solutions for new problems.	
	TAXAP9	I am able to perform my work well with minimal time and effort.	
	TAXAP10	I actively look for ways to improve my performance at work.	
	TAXAP11	I have the relevant knowledge and skills to conduct the audit tasks.	
	TAXAP12	I have the ability to conduct audit tasks in accordance with prescribed standards and other regulatory requirements.	

Note: AUDEFF = Auditors' Effort; AUDTEC: Audit Technology; TAXAP: Tax Auditors' Performance

DEFINITION OF VARIABLES

TABLE 2. Definition of variables

Type of Variable	Variable	Definition of Variable
Independent Variable	Auditors' Effort	Effort is the amount of hard work exerted to complete a task, while performance has resulted from the hard work that they have exerted (Christen et al. 2006).
	Audit Technology	Audit technology refers to automated software or applications for conducting tax audits (Braun & Davis 2003).
Dependent Variable	Tax Auditors' Performance	Tax auditors' performance refers to individual or group work achievement due to their roles in achieving the organisation's goals ethically and legally by following the rules and regulations (Basri et al. 2019; Jackson et al. 2018).

POPULATION AND SAMPLE

The study population comprises tax auditors from the Malaysian Tax Agency, encompassing the Inland Revenue Board Malaysia (IRBM) and the Royal Malaysian Customs Department (RMCD). IRBM monitors direct taxes such as corporate and individual income tax and other taxes such as stamp duty and real property gains tax. RMCD manages indirect taxes such as Sales and Service Tax (SST), tourism tax (TTx), import, export and excise duties. The study involved a total population of 2110, with 1444 from IRBM and 666 from RMCD, as presented in Table 3.

The study's sample size was determined using an online calculator based on web survey software (Raosoft 2004). The Raosoft sample size calculator indicated a minimum sample size of 325. Krejcie and Morgan (1970) suggested, for populations of (N) = 2000 and 2200, sample sizes of (S) = 322 and 327, respectively, which closely align with Raosoft's recommendation. Therefore, the researchers assert that a sample size of 325 is adequate for the study, as Raosoft recommended.

This study involves Malaysian government agencies, where most of the information and data is private and confidential under the Income Tax Act 1967 and Customs Act 1967, which restricts public disclosure. Consequently, the researchers need more direct access to potential respondents. The census technique was the most appropriate for this study, referring to the entire population (Burns & Veeck 2020). The census method differs from sampling methods in that it gathers data from every member of the population rather than just a subset. This approach ensures comprehensive coverage and is often used when the population size is manageable or when a complete data set is essential for achieving accurate research outcomes. Previous empirical studies have demonstrated that the census method increases response rates (Abu Bakar & Ahmad 2010; Ahmad et al. 2019; June & Mahmood 2011).

TABLE 3. Population

State	Agency		Total
	IRBM	RMCD	
Perlis	5	10	15
Kedah	41	25	66
Pulau Pinang	138	53	191
Perak	103	43	146
Selangor	189	121	310
Kuala Lumpur	221	123	344
Putrajaya	208	64	272
Negeri Sembilan	38	20	58
Melaka	42	20	62
Johor	158	57	215
Kelantan	20	12	32
Terengganu	21	12	33
Pahang	54	27	81
Sabah	84	42	126
Sarawak	122	37	159
Total	1444	666	2110

DATA COLLECTION

This quantitative study utilised primary data collected through a survey in the form of a questionnaire (Adam et al. 2007). Questionnaire surveys enable quantitative and numerical understanding of the sample population's perceptions, trends, behaviors or attitudes, aligning with the research goals (Creswell 2009).

Sekaran (2003) outlined various questionnaire distribution channels, including hand delivery, mail or online platforms. Leveraging modern technology, researchers utilised Google Forms for online questionnaire design and

data collection, a popular choice due to its accessibility. Employing Google Forms facilitated efficient data collection, potentially yielding higher response rates.

Due to limited access to respondent information, survey questionnaires in Google Forms were distributed to tax auditors in IRBM and RMCD through department heads and coordinators via email. In total, thirty emails were sent to department heads and coordinators in the tax audits department for data collection processes, followed by phone calls and emails to confirm the distribution of survey questionnaires. The department heads and coordinators were asked to distribute the survey questionnaires to tax auditors.

Furthermore, the researchers conducted multiple follow-ups with tax audit department heads and coordinators to increase response rates by email and telephone. These efforts aimed to meet the study's minimum sample requirements. A total of 390 tax auditors responded; however, only 370 responses were accepted after the data screening process for data analysis. The response rate is 18.50% (370 usable questionnaires out of 2110 distributed questionnaires) which is regarded as a large sample size for SEM analysis (Hair et al. 2014; Kline 2023) and reaches the appropriate sample size as recommended by Raosoft.

Additionally, to avoid and control the response bias, the researchers have clearly defined the population and appropriate sample size for the study. The respondents were given the appropriate time at which they could respond anytime and anywhere which was convenient to them. Besides, the survey questionnaires were designed using five Likert scales that are widely used for obtaining respondents' perceptions (Nguyen 2015).

DATA ANALYSIS

The data were analyzed using IBM-SPSS-AMOS for Structural Equation Modelling (SEM). According to Hair et al. (2019), SEM is suitable for testing relationships between constructs through multiple items. Additionally, SEM was employed to examine the study's hypotheses (H₁ and H₂) (Awang et al. 2023; Collier 2020; Thakkar 2020).

This study examines the impact of auditors' efforts and audit technology on tax auditors' performance. The analysis offers empirical support for the study's findings using SEM. The quantitative data underwent confirmatory factor analysis (CFA) to assess constructs, item validity, and reliability. The structural model was employed to examine the hypothesis development, exploring the relationship between exogenous (auditors' effort and audit technology) and endogenous (tax auditors' performance) constructs (Awang et al. 2023; Collier 2020; Hair et al. 2019; Thakkar 2020).

DEMOGRAPHIC PROFILE

Table 4 presents the demographic profile of respondents, where 370 tax auditors from IRBM and RMCD participated in the questionnaire survey. Most respondents were female (67.60%), with males comprising 32.40%. The age group between 31 to 40 years was the most significant demographic (63.00%), followed by 41 to 50 years (23.20%), 30 years and below (8.90%) and 51 years old and above (4.90%). Malays (89.70%) constituted the highest proportion of respondents by ethnicity, followed by Other (5.90%), Indian (3.50%), and Chinese (0.80%).

Based on the 370 respondents, the majority hold bachelor's degrees (84.30%), while 56 (15.10%) possess Ph.D. or master's degrees, and only two (0.50%) have professional qualifications from the Association of Chartered Certified Accountants (ACCA). Most respondents (69.20%) were from RMCD, with 30.80% from IRBM. The majority fell within grades 41 to 44 (90.30%), and the balance in grades 48 and above (9.70%). Experience-wise, 35.10% had three years or less in tax audit, while 64.90% had four years or more.

TABLE 4. Demographic profile

Demographic Variables	Frequency	Percentage (100%)
Gender		
Male	120	32.40
Female	250	67.60
Age		
30 years old and below	33	8.90
31 to 40 years old	233	63.00
41 to 50 years old	86	23.20
51 years old and above	18	4.90
Race		
Malay	332	89.70
Chinese	3	0.80
Indian	13	3.50
Other	22	5.90
Qualification background		
Bachelor's degree	312	84.30
Ph.D./ master's degree	56	15.10
Professional qualification	2	0.50
Working agency		
Inland Revenue Board of Malaysia	114	30.80

Royal Malaysian Customs Department	256	69.20
Current position		
Grade 41 to 44	334	90.30
Grade 48 and above	36	9.70
Experience in tax audit		
3 years and below	130	35.10
4 to 6 years	96	25.90
7 to 9 years	94	25.40
10 to 12 years	29	7.80
13 years and above	21	5.70

CONFIRMATORY FACTOR ANALYSIS

Confirmatory Factor Analysis (CFA) is crucial for validating latent constructs in SEM (Awang et al. 2023; Mahfouz et al. 2020; Rahlin et al. 2020). The CFA assesses uni-dimensionality, model fit, convergent validity and construct reliability (Awang et al. 2023; Bahkia et al. 2019; Kashif et al. 2016). Initially, three constructs were evaluated: auditors' effort (eight items: AUDEFF1 to AUDEFF8), audit technology (twelve items: AUDTEC1 to AUDTEC12) and tax auditors' performance (twelve items: TAXAP1 to TAXAP12). However, six items showed low factor loadings (auditors' effort: AUDEFF2 =.467, AUDEFF3 =.549, AUDEFF4 =.332, AUDEFF6 =.426, AUDEFF7 =.372 and tax auditors' performance: TAXAP4 =.564), indicating poor uni-dimensionality. Items with factor loadings below 0.60 were removed to improve model fitness (Awang et al. 2023; Collier 2020; Hair et al. 2019; Kline 2016).

Construct validity, the second step in CFA, relies on assessing model fit. Adequate fit is indicated when at least one of the fitness indexes meets accepted criteria across three categories (Awang et al. 2023; Collier 2020; Hair et al. 2014; Kline 2005, 2016; Thakkar 2020). Table 5 shows the fitness indices and acceptance values. The results indicate that all categories met acceptance criteria, affirming construct validity.

TABLE 5. Fitness indices for model fit

Category	Indices Value	Acceptance Value	Remarks
Absolute Fit			
Chi-Square	1257.362	P-value > 0.05	Acceptable for sample size >200
RMSEA	.069	RMSEA < 0.08	Achieved
Incremental Fit			
AGFI	.776	AGFI > .90	Not achieved
CFI	.924	CFI > .90	Achieved
NFI	.887	NFI > .90	Not achieved
TLI	.918	TLI > .90	Achieved
Parsimonious Fit			
Chi-Square/df	2.763	Chi-Square/f < 3.0	Achieved

The final steps in CFA involve assessing convergent validity (AVE) and composite reliability (CR). Table 6 shows values exceeding the recommended thresholds of AVE >.05 and CR >.060, as suggested by Hair et al. (2019), for all three constructs, confirming their satisfactory convergent validity and reliability.

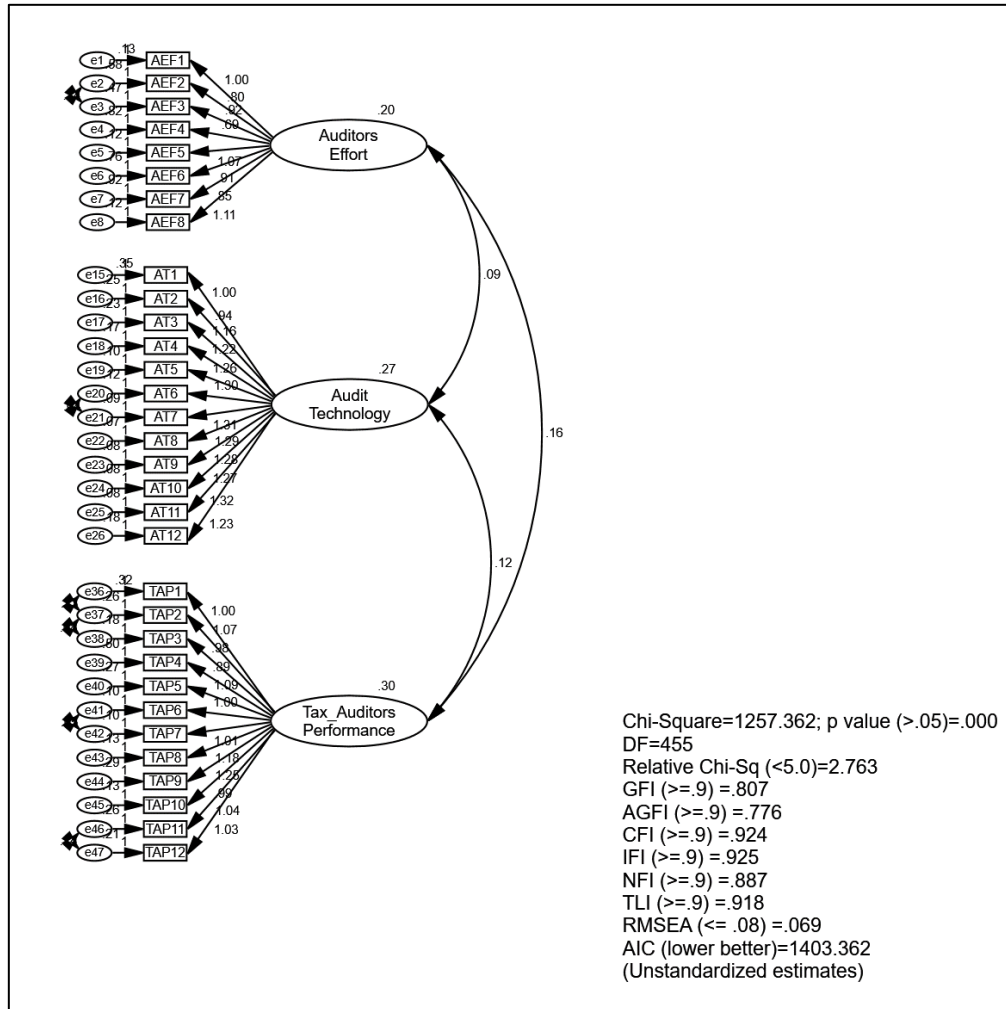
TABLE 6. Convergent validity and composite reliability

Constructs	Items	Factor Loadings	AVE	CR
Auditors' Effort	AUDEFF1	0.779	0.649	0.847
	AUDEFF5	0.813		
	AUDEFF8	0.825		
Audit Technology	AUDTEC1	0.654	0.729	0.970
	AUDTEC2	0.687		
	AUDTEC3	0.774		
	AUDTEC4	0.833		
	AUDTEC5	0.896		
	AUDTEC6	0.888		
	AUDTEC7	0.919		
	AUDTEC8	0.934		
	AUDTEC9	0.924		
	AUDTEC10	0.924		
	AUDTEC11	0.924		
	AUDTEC12	0.826		
Tax Auditors' Performance	TAXAP1	0.684	0.628	0.949
	TAXAP2	0.742		
	TAXAP3	0.773		
	TAXAP5	0.743		
	TAXAP6	0.863		
	TAXAP7	0.874		
	TAXAP8	0.872		
	TAXAP9	0.781		
	TAXAP10	0.835		

TAXAP11	0.749
TAXAP12	0.778

Note: AUDEFF = Auditors' Effort; AUDTEC: Audit Technology; TAXAP: Tax Auditors' Performance

The CFA procedures are deemed successful when all items exhibit factor loading values above 0.60, and the model fits meet accepted thresholds across fitness index categories (absolute fit, incremental fit and parsimonious fit) (Awang et al. 2023; Hair et al. 2019). Further, AVE >.05 and CR >.60. Additionally, the completion of CFA confirms the validation of latent constructs before proceeding to the measurement model (Sarwar et al. 2022).



MEASUREMENT MODEL

In SEM, the subsequent step after CFA is the measurement model, assessing discriminant validity. Two methods are primarily used. Firstly, the Fornell-Larcker method, which evaluates AVE and r2. According to Bryne (2010), this method is stringent, requiring AVE values to surpass r2 values for constructs. Table 7 shows higher AVE values than r2 values for both constructs, confirming discriminant validity.

In the HTMT ratio method, discriminant validity is assessed through correlation coefficients. Values below .90 are acceptable. Table 8 indicates overall HTMT values below .90, confirming discriminant validity. Both methods establish the measurement model's discriminant validity.

TABLE 7. Discriminant validity (Fornell and Larcker)

	AUDEFF	AUDTEC	TAXAP
AUDEFF	.806		
AUDTEC	.343	.854	
TAXAP	.681	.439	.793

Note: AUDEFF = Auditors' Effort; AUDTEC: Audit Technology; TAXAP: Tax Auditors' Performance

TABLE 8. Discriminant validity (HTMT Ratio)

	AUDEFF	AUDTEC	TAXAP
AUDEFF			
AUDTEC	.342		
TAXAP	.674	.433	

Note: AUDEFF = Auditors' Effort; AUDTEC: Audit Technology; TAXAP: Tax Auditors' Performance

STRUCTURAL MODEL

The structural model was used to test the study's hypothesis development. Latent constructs were categorised into two categories: exogenous constructs (auditors' efforts and audit technology) on the left and endogenous constructs (tax auditors' performance) on the right (Awang 2018). Figure 3 shows these relationships. Double-headed arrows indicate the correlation between exogenous constructs, while single-headed arrows represent causal relationships between exogenous and endogenous constructs. Multi-collinearity was assessed with causal relationships outlined in earlier hypotheses, signalled by correlations above 0.85 between exogenous constructs (Awang et al. 2023; Sarwar et al. 2022).

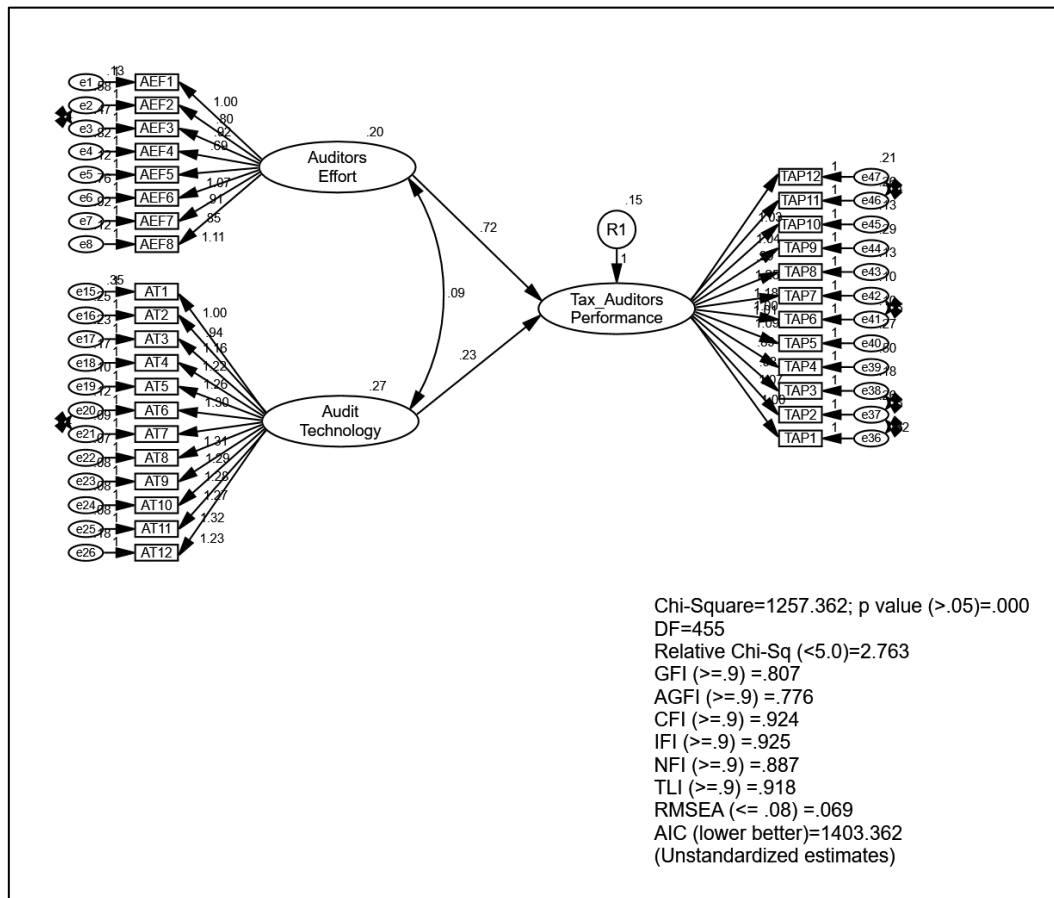


FIGURE 3. Structural model

RESULTS AND DISCUSSION

THE RELATIONSHIP BETWEEN AUDITORS' EFFORTS AND TAX AUDITORS' PERFORMANCE

As shown in Table 9, the structural model indicates a significant influence of auditors' efforts on tax auditors' performance, with $\beta = .724$, S.E. = .077, C.R. = 9.400 and $p < 0.05$. This finding supports hypothesis H₁ and aligns with previous research (Alissa et al. 2014; Sanusi et al. 2007; Usmany 2021).

Increased auditors' efforts correlate positively with enhanced tax auditors' performance. As the effort exerted increases, the performance also increases (Johari & Sanusi 2012), thus facilitating the efficient completion of tax audits. These results highlight the premise of the attribution theory's internal factors, such as effort, influence performance behaviour.

Auditors' efforts play an important role in determining the good and quality of the audit report and ensuring the completeness of audit tasks (Xiao et al. 2020). Tax auditors who exert more effort and provide good and quality audit reports lead to effectiveness and efficiency while performing tax audits. Besides, Salman and Hatta (2020) agreed the completeness of audit tasks was supported by the auditors' hard work and efforts, to achieve successful performance.

Dixon et al. (2001) expected tax auditors to increase the level of effort to complete the audit tasks especially when there is a failure in tax audit. For instance, Usmany (2021) recommended in the efforts-performance relationship, the auditors should allocate appropriate time, work commitment and work hard to contribute to better performance.

THE RELATIONSHIP BETWEEN AUDIT TECHNOLOGY AND TAX AUDITORS' PERFORMANCE

The results in Table 9 reveal a significant impact of audit technology on tax auditors' performance, with $\beta = 0.230$, S.E. = .051, C.R. = 4.503 and $p < 0.05$. This finding supports the hypothesis and previous research (Handoko & Wijaya 2020; Suputra & Widhiyani 2020).

Audit technology aims to facilitate tax auditors in conducting tax audit activities to maximize the audit results by extracting and analysing data. In the current era, audit technology has become an important element in tax audits as the business environments are more sophisticated (Eulerich et al. 2023). Pedrosa et al. (2020) highlighted the importance of audit technology to increase the efficiency and effectiveness of tax auditing for better work performance. Besides, technology advancements have impacted the auditing process, and big data organizations such as IRBM and RMCD require tax authorities to change auditing techniques from manual to automated techniques.

Audit technology expedites and streamlines the auditing process (Ismail & Abidin 2009; Wicaksono et al. 2018), enabling auditors to focus and concentrate on their tasks (Marei & Iskandar 2019). Hence, tax auditors would be able to produce better audit opinions and perform better with the assistance of audit technology. Handoko et al. (2020) also suggest that employing technology in the auditing process could enhance audit quality and auditor performance. In another similar study, Sanusi et al. (2023) emphasise the significance of technology in achieving higher performance levels, leading to more efficient and effective audits. Thus, integrating audit technology is more likely to further enhance the performance of tax auditors.

Moreover, this study's findings align with the attribution theory, which posits that external factors like audit technology can influence tax auditors' performance by facilitating tasks. However, the effectiveness and efficiency of leveraging audit technology in tax auditing activities must be supported by the auditors' knowledge and skills in information technology, and proficiency in audit technology with situational and technical support from the management (Mohd-Noor et al. 2022; Sanusi et al. 2023).

TABLE 9. Standardise regression weights

	Estimates	S.E.	C.R.	P
Auditors' Effort \leftarrow Tax Auditors' Performance	.724	.077	9.400	***
Audit Technology \leftarrow Tax Auditors' Performance	.230	.051	4.503	***

CONCLUSION

In conclusion, based on the attribution theory, this study examined how auditors' efforts and audit technology affect tax auditors' performance. It involved 370 Malaysian tax auditors from the Inland Revenue Board of Malaysia and the Royal Malaysian Customs Department.

This study reveals a significant influence of auditors' efforts on tax auditors' performance, consistent with previous research (Alissa et al. 2014; Sanusi & Iskandar 2007; Usmany 2021). This finding indicates the pivotal role of auditors' efforts in shaping performance outcomes. The increased effort exerted by auditors correlates with enhanced performance.

Similarly, audit technology significantly enhances tax auditors' performance, aligning with prior studies (Handoko & Wijaya 2020; Suputra & Widhiyani 2020). Technology adoption transforms auditing techniques, boosting efficiency and effectiveness in tax audits (Ahmad et al. 2023), thus becoming indispensable in modern audit environments.

Moreover, this study confirms the attribution theory, suggesting that internal factors (auditors' efforts) and external factors (audit technology) influence tax auditors' performance. The findings emphasise the importance of the internal factor of auditors' efforts and external factors of audit technology since these factors influence tax auditors' performance.

IMPLICATIONS

Addressing inconsistencies in prior research, this study employs empirical analysis through SEM and the attribution theory to enhance understanding in the accounting behavioural field, particularly regarding tax audits and tax auditors' performance within Malaysian tax administrations. Encompassing direct (the Inland Revenue Board of Malaysia) and indirect taxes (the Royal Malaysian Customs Department), it offers a comprehensive perspective beyond a single tax type. Most of the studies in the taxation area, especially in tax audits, focus on a single tax type, either direct or indirect taxes only. However, this study combines both taxation types direct and indirect taxes to provide the greatest understanding of tax auditors' performance that focuses on auditors' efforts and audit technology influencing tax auditors' performance.

The findings of the study are important to the tax authorities (IRBM and RMCD) in enhancing understanding of tax auditors' performance, raising awareness among auditors and tax authorities regarding the influence of auditors' efforts and audit technology. It suggests policy solutions and emphasises the significance of training, skills, knowledge and management support for effective tax audit implementation. Additionally, these findings provide valuable insight to the tax authorities in identifying the risks, issues and challenges in tax audits. Hence, this study serves as a guide to the tax authorities to provide appropriate resources in tax audits that can focus on auditors' efforts and audit technology for better performance and in ensuring the effectiveness and efficiency in tax audit activities.

Theoretically, this study has contributed to the body of knowledge by providing empirical evidence using SEM analysis and conceptual framework to explain the influence factors of auditors' efforts and audit technology on tax auditors' performance. The conceptual framework was developed according to the attribution theory combines internal factors (auditors' efforts) and external factors (audit technology) that serve as underpinning theory for this study. Most of the studies were focused on financial audits, internal audits and operation audits. However, this study focuses on compliance audits (tax audits) which provide a body of knowledge in the taxation area, particularly in tax audits.

LIMITATIONS AND FUTURE STUDY

While this study offers theoretical and practical insights, it is confined to developing countries and Malaysian tax auditors' perceptions. Focused on Malaysian tax administrations, namely the Inland Revenue Board of Malaysia (IRBM) and Royal Malaysian Customs Department (RMCD), access to respondent details, such as email and contact numbers, was restricted due to confidentiality protocols. Consequently, data collection and follow-up efforts were hindered, necessitating multiple follow-ups with department heads and coordinators to improve response rates.

Future studies should explore tax auditors' performance across diverse countries, including developed and developing countries, to uncover potential differences in perceptions. Additionally, researchers should investigate other internal and external factors influencing performance, guided by the attribution theory.

Moreover, future studies should incorporate moderating variables like auditors' experience, knowledge, and skills, and task complexity to understand further the relationship between auditors' effort, audit technology and tax auditors' performance. This would aid in further insights into the relationship between auditors' efforts, audit technology and tax auditors' performance.

ACKNOWLEDGEMENT

The authors express gratitude to the Inland Revenue Board of Malaysia and the Royal Malaysian Customs Department for providing data, the participation of Malaysian tax auditors, and approval for this study from the Universiti Putra Malaysia Ethics Committee.

REFERENCES

- Abu Bakar, L.J. & Ahmad, H. 2010. Assessing the relationship between firm resources and product innovation performance: A resource-based view. *Business Process Management Journal* 16(3): 420–435.
- ACCA. 2019. Audit and technology. Retrieved from <https://www.accaglobal.com/us/en/professional-insights/technology/audit-and-tech.html>
- Adam, J., Khan, H.T.A., Raeside, R. & White, D. 2007. *Research Methods for Graduate Business and Social Science*. Sage Publications, Inc.
- Adediran, S., Alade, S. & Oshode, A. 2013. The impact of tax audit and investigation on revenue generation in Nigeria. *European Journal of Business and Management* 5(26): 171-176.
- Ahmad, H., Mokhtar, N. & Ismail, S. 2023. Bibliometric analysis and review of digital audit practices in the public sector of different countries. *IPN Journal of Research and Practice in Public Sector Accounting and*

- Management* 13(2): 37–60.
- Ahmad, M.F., Ismail, S.N., Hassan, M.F., Wei, C.S., Abdul, N., Ahmad, A.N.A., Nawawi, M.N.M. & Rahman, N.A.A. 2019. A study of green factory practices in Malaysia manufacturing industry. *International Journal of Supply Chain Management* 8(1): 772–776.
- Ahmad, S.R., Hariri, H., Zawawi, S.N.H.M. & Hassan, R. 2019. Determinants of auditors' work performance. *International Journal of Financial Research* 10(3): 230–238.
- Ahmi, A., Saidin, S.Z. & Abdullah, A. 2017. Examining CAATTs implementation by internal auditors in the public sector. *Indian-Pacific Journal of Accounting and Finance* 1(2): 50–56.
- Aida, N. 2021. Work experience, obedience pressure and task complexity on audit judgment. *Golden Ratio of Auditing Research* 1(2): 64-72.
- Alissa, W., Capkun, V., Jeanjean, T. & Suca, N. 2014. An empirical investigation of the impact of audit and auditor characteristics on auditor performance. *Accounting, Organizations and Society* 39(7): 495–510.
- Allbabidi, M.H.A. 2021. Hype or hope: Digital technologies in auditing process. *Asian Journal of Business and Accounting* 14(1): 59–85.
- Awang, Z. 2018. *Pendekatan Mudah SEM-Structural Equation Modelling*. MPWS Rich Resources.
- Awang, Z., Norhan, W.H., Hui, L. & Zainuding, N.F. 2023. *SEM Made Simple 2.0: A Gentle Approach of Structural Equation Modelling*. Penerbit Unisza.
- Aziz, S.A. & Isa, I. 2017. Interactive data extraction analysis (idea): The determinants of behavioral intention among field audit officers in Putrajaya State Director Office, IRBM. *International Conference on Accounting Studies (ICAS) 2017*, 143–148.
- Bahkia, A.S., Awang, Z., Afthanorhan, A., Ghazali, L.P. & Foziah, H. 2019. Exploratory factor analysis on occupational stress in context of Malaysian sewerage operations. *AIP Conference Proceedings* 2138(1).
- Bedi, I. 2016. The influence of tax audit on tax compliance in Ghana. *International Journal of Management Practice* 9(2): 132–141.
- Blaufus, K., Lorenz, D., Milde, M., Peuthert, B. & Schwäbe, A.N. 2021. Negotiating with the tax auditor: Determinants of tax auditors' negotiation strategy choice and the effect on firms' tax adjustments. *Accounting, Organizations and Society* 97.
- Braun, R.L. & Davis, H.E. 2003. Computer-assisted audit tools and techniques: Analysis and perspectives. *Managerial Auditing Journal* 18(9): 725–731.
- Burns, A.C. & Veeck, A. 2020. *Marketing Research* (9th Ed.). Pearson.
- Christen, M., Iyer, G. & Soberman, D. 2006. Job satisfaction, job performance, and effort: A reexamination using agency theory. *Journal of Marketing* 70: 137–150.
- Collier, J.E. 2020. *Applied Structural Equation Modeling Using AMOS: Basic to Advanced Techniques*. Taylor & Francis Group, LLC.
- Creswell, J.W. 2009. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (3rd ed.) SAGE Publications, Inc.
- Curtis, M.B. & Payne, E.A. 2014. Modeling voluntary CAAT utilization decisions in auditing. *Managerial Auditing Journal* 29(4): 304–326.
- Dixon, A.L., Spiro, R.L. & Jamil, M. 2001. Successful and unsuccessful sales calls: Measuring salesperson attributions and behavioral intentions. *Journal of Marketing* 65: 64–78.
- Douglas, C.M. & Milton, D.H. 1997. Effects of objective and subjective task complexity on performance. *Human Performance* 10(4): 303–330.
- Dowling, C. & Leech, S. 2007. Audit support systems and decision aids: Current practice and opportunities for future research. *International Journal of Accounting Information Systems* 8(2): 92–116.
- Drogalas, G., Loannis, S., Dimitra, K. & Loannis, D. 2015. Tax audit effectiveness in Greek firms: Tax auditors' perceptions. *Journal of Accounting and Taxation* 7(7): 123–130.
- Eulerich, M., Masli, A., Pickerd, J. & Wood, D.A. 2023. The impact of audit technology on audit task outcomes: Evidence for technology-based audit techniques. *Contemporary Accounting Research* 40(2): 981–1012.
- Falola, I., Tams-alasia, O. & Udochukwu, U. 2018. Auditing standards and auditors performance : A study of Nigerian banks. *Proceedings of ICGET 2018*, 213–216.
- Fatas, E., Nosenzo, D., Sefton, M. & Zizzo, D.J. 2021. A self-funding reward mechanism for tax compliance. *Journal of Economic Psychology* 86
- Hair, J.F., Black, W.C., Babin, B.J. & Anderson, R.E. 2014. *Multivariate Data Analysis* (7th Edition). Pearson.
- Hair, J.F., Black, W.C., Babin, B.J. & Anderson, R.E. 2019. *Multivariate Data Analysis* (8th Edition). Annabel Ainscow.
- Hakami, T.A. 2024. The determinants of job satisfaction and auditors' performance in the Saudi context. *Journal of Money and Business* 4(1): 18-37.
- Handoko, B.L., Lindawati, A.S.L. & Mustapha, M. 2020. What drive auditor to switch from manual to audit software. *European Journal of Molecular & Clinical Medicine* 07(08): 104–112.
- Handoko, B.L. & Wijaya, S.A. 2020. How information technology intervene competence and effort to auditor

- performance. *2nd International Conference on E-Business and E-Commerce Engineering (EBEE 2020)*, 28–34.
- Harelimana, J.B. 2018. Effect of tax audit on revenue collection in Rwanda. *Global Journal of Management and Business Research* 18(2): 1-11.
- Hussein, F. & Hanefah, M. 2013. Overview of surrogates to measure audit quality. *International Journal of Business and Management* 8(18): 84–91.
- Iskandar, T.M., Sari, R.N., Sanusi, Z.M. & Anugerah, R. 2012. Enhancing auditors' performance: The importance of motivational factors and the mediation effect of effort. *Managerial Auditing Journal* 27(5): 462–476.
- Ismail, N.A. & Abidin, A.Z. 2009. Perception towards the importance and knowledge of information technology among auditors in Malaysia. *Journal of Accounting and Taxation* 1(4): 61–69.
- Johari, R., Sanusi, Z. & Ismail, A. 2012. Exploratory factor analysis of the ethical orientation scale. *Asian Journal of Accounting and Governance* 3(1): 1–11.
- Johari, R.J., Ridzoan, N.S. & Zarefar, A. 2019. The influence of work overload, time pressure and social influence pressure on auditors' job performance. *International Journal of Financial Research* 10(3): 88–106.
- Johari, R.J. & Sanusi, Z.M. 2012. The effect of knowledge, effort and ethical orientation on audit judgment performance. *Journal of Academic Minds* 6(1): 73–90.
- Joulfaian, D. 2000. Corporate income tax evasion and managerial preferences. *Review of Economics and Statistics* 82(4): 698–701.
- June, S. & Mahmood, R. 2011. Role ambiguity and job performance. *Malaysian Management Journal* 15: 1–20.
- Kashif, M., Samsi, S.Z.M., Awang, Z. & Mohamad, M. 2016. EXQ: Measurement of healthcare experience quality in Malaysian settings: A contextualist perspective. *International Journal of Pharmaceutical and Healthcare Marketing* 10(1): 27–47.
- Khairun, A.L., Nurmala, P. & Adiwibowo, A.S. 2021. Effect of auditor profession ethics, supervision action, and training on junior auditor performance. *International Journal of Accounting, Taxation, and Business* 2(1): 14–24.
- Kline, R.B. 2005. *Principles and Practice of Structural Equation Modelling* (2nd Edition). The Guilford Press.
- Kline, R.B. 2016. *Principles and practice of Structural Equation Modelling*. The Guilford Press.
- Kline, R.B. 2023. *Principles and Practice Of Structural Equation Modelling* (5th Ed.). Guilford Press.
- Kohli, A., Blitzer, D.N., Lefco, R.W., Barter, J.W., Haynes, M.R., Colalillo, S.A., Ly, M. & Zink, C.F. 2018. Using expectancy theory to quantitatively dissociate the neural representation of motivation from its influential factors in the human brain: An fMRI study. *NeuroImage* 178: 552–561.
- Kusumastuti, R., Ghozali, I. & Fuad. 2016. Auditor professional commitment and performance: An ethical issue role. *Risk Governance and Control: Financial Markets and Institutions* 6(4): 540–548.
- Lase, E., Hwee, T.S. & Edward, Y.R. 2021. The effect of role conflict and ethical sensitivity on auditor performance with moderation of emotional intelligence. *Journal of Economics, Business, & Accountancy Ventura* 24(2): 326–338.
- Linda, K., Claire, M.B., Vincent, H.H., Stef, V.B., Van, D.B. & Henrica, C.W. 2014. Improving the individual work performance questionnaire using Rasch analysis. *Journal of Applied Measurement* 15(2).
- Mahfouz, S.A., Awang, Z., Muda, H. & Bahkia, A.S. 2020. Mediating role of employee commitment in the relationship between transformational leadership style and employee performance. *Humanities and Social Sciences Reviews* 8(2): 624–637.
- Marei, A. & Iskandar, T.M. 2019. The impact of Computer Assisted Auditing Techniques (CAATs) on development of audit process: An assessment of Performance Expectancy of by the auditors. *International Journal of Management and Commerce Innovations* 7(2): 1199–1205.
- Marr, B. 2018. *How Much Data Do We Create Every Day? The Mind-Blowing Stats Everyone Should Read*. Forbes.
- Martinko, M.J., Moss, S.E., Douglas, S.C. & Borkowski, N. 2007. Anticipating the inevitable: When leader and member attribution styles clash. *Organizational Behavior and Human Decision Processes* 104: 158–174.
- Miller, M.J., Woehr, D.J. & Hudspeth, N. 2002. The meaning and measurement of work ethic: Construction and initial validation of a multidimensional inventory. *Journal of Vocational Behavior* 60(3): 451–489.
- Mirera, D.M. 2014. *The effects of tax audit on revenue collection: Case of Kenya Revenue Authority*. Master's thesis, University of Nairobi. Google Scholar.
- Mohd-Noor, N.F., Sanusi, Z.M., Johari, R.J., Al-Dhubaibi, A.S. & Razak, N.A. 2022. An examination of the utilization of audit technology in influencing audit job performance. *Asia-Pacific Management Accounting Journal* 17(1): 283–309.
- Muindi, F. & Obonyo, P.K. 2015. Quality of work life, personality, job satisfaction, competence and job performance: A critical review of literature. *European Scientific Journal* 11(26): 223–240.
- Ndenga, S. & Ayuma, C. 2015. Effect of post clearance audit on revenue collection in Kenya: A case study of customs service department in mombasa county. *International Journal of Science and Research (IJSR)* 4(3): 1185–1191.

- Nguyen, N.T.D. 2015. The impact of cultural differences on technology transfer. *Journal of Manufacturing Technology Management* 26(7): 926–964.
- Nguyen, N.T.D., Pham, T.M.L., Le, T.T., Truong, T.H.L. & Tran, M.D. 2020. Determinants influencing tax compliance: The case of Vietnam. *Journal of Asian Finance, Economics and Business* 7(2): 65–73.
- Octaviani, D., Jaswadi & Ekasari, K. 2020. The effect of independence, time pressure, and accountability, and due professional care on audit quality improvement. *Proceedings of 2nd Annual Management, Business and Economic Conference (AMBEC 2020) The, 183*, 106–110.
- Omoteso, K. 2012. The application of artificial intelligence in auditing: Looking back to the future. *Expert Systems with Applications* 39(9): 8490–8495.
- Onoja, M.L. & Iwarere, T.H. 2015. Effects of tax audit on revenue generation. Federal Inland revenue service, Abuja experience. *Journal of Good Governance and Sustainable Development in Africa* 2(4): 67–80.
- Pedro, J.R.V., Juan, R.B., Elena, F.D.R. & Linda, K. 2019. Assessing job performance using brief self-report scales: The case of the individual work performance questionnaire. *Journal of Work and Organizational Psychology* 35(3): 195–205.
- Pedrosa, I., Costa, C.J. & Aparicio, M. 2020. Determinants adoption of computer-assisted auditing tools (CAATs). *Cognition, Technology and Work* 22(3): 565–583.
- Phan, H.P. 2009. Reflective thinking, effort, persistence, disorganization and academic performance: A mediated approach. *Electronic Journal of Research in Educational Psychology* 7(3): 927–952.
- Pulliam, D.B., Calvin, C.G., Eulerich, M. & Maghakyan, A. 2023. Audit evidence, technology, and judgement: A review of the literature in response to ED-500. *Journal of International Financial Management & Accounting* 35(1): 1–32.
- Rahlin, N.A., Awang, Z., Abdul Rahim, M.Z. & Bahkia, A.S. 2020. The impact of employee safety climate on safety behavior in small & medium enterprises: An empirical study. *Humanities and Social Sciences Reviews* 8(3): 163–177.
- Salman, K.R. & Hatta, D.S. 2020. Professionalism, leadership style, understanding of governance and role of supervision in affecting auditor performance. *Journal of Auditing, Finance, and Forensic Accounting* 8(1): 11–18.
- Sanusi, Z.M. & Iskandar, T.M. 2007. Audit judgment performance: Assessing the effect of performance incentives, effort and task complexity. *Managerial Auditing Journal* 22(1): 34–52.
- Sanusi, Z.M., Iskandar, T.M., Gary, S.M. & Saleh, N.M. 2018. Effects of goal orientation, self-efficacy and task complexity on the audit judgement performance of Malaysian auditors. *Accounting, Auditing and Accountability Journal* 31(1): 75–95.
- Sanusi, Z.M., Iskandar, T.M. & Poon, J.M.L. 2007. Effects of goal orientation and task complexity on audit judgment performance. *Malaysian Accounting Review* 6: 123–139.
- Sanusi, Z.M., Mohd-Noor, N.F., Isa, Y.M., Ghazali, A.W. & Rentah, F. 2023. The implications of digital audit practice, management support and team support on auditor performance. *IPN Journal of Research and Practice in Public Sector Accounting and Management* 13(01): 59–80.
- Sarwar, M. , Awang, Z., Habib, M. , Nasir, J. & Hussain, M. 2022. Why did I buy this? Purchase regret and repeat purchase intentions: A model and empirical application. *Journal of Public Affairs* 22(1).
- Sekaran, U. 2003. *Research Methods for Business: A Skill Building Approach* (4th Edition) (7th ed.). John Wiley & Sons.
- Srimindarti, C., Oktaviani, R.M., Hardiningsih, P. & Udin, U. 2020. Determinants of job satisfaction and performance of auditors: A case study of Indonesia. *Journal of Management Systems* 21(178): 84–89.
- Su, J.M., Lee, S.C., Tsai, S. B. & Lu, T.L. 2016. A comprehensive survey of the relationship between self-efficacy and performance for the governmental auditors. *SpringerPlus* 5(1).
- Sulaiman, N., Shahimi, S. & Singh, R.K.N. 2019. People and audit process attributes of audit quality: Evidence from Malaysia. *Management and Accounting Review* 18(2): 47–80.
- Sunyoto, Y., Ghozali, I. & Purwanto, A. 2017. Analysis of auditor performance by using covariance based structural equation modeling: A study of public accounting firms in Indonesia. *European Research Studies Journal* 20(3A): 524–537.
- Suputra, I.D.G.D. & Widhiyani, N.L.S. 2020. Types of personality, audit structure and transformational leadership styles moderate the effect of organizational commitments on auditor performance. *International Research Journal of Management, IT and Social Sciences* 7(6): 54–65.
- Thakkar, J.J. 2020. *Structural Equation Modelling: Application for Research and Practice (With AMOS and R)*. Springer.
- Usmany, P. 2021. The influence of self-efficacy and effort on auditor performance specific experience as antecedent variables (Empirical study on BPK-RI in Indonesia). *Budapest International Research and Critics Institute-Journal* 4(4): 12366–12379.
- Veerankutty, F. 2019. Effect of information technology success factors and governance on audit technology performance [Unpublished Ph.D's thesis]. *Universiti Putra Malaysia*.

- Wicaksono, A., Laurens, S. & Novianti, E. 2018. Impact analysis of computer assisted audit techniques utilization on internal auditor performance. *2018 International Conference on Information Management and Technology*, 267–271.
- Widyakusuma, A., Sudarma, M. & Roekhudin. 2019. The effect of professionalism and experience on audit judgment with task complexity as a moderating variable. *International Journal of Multicultural and Multireligious Understanding* 6(2): 97–112.
- Woo, S. & Lim, H. 2015. Audit risk, business risk, and auditors' efforts in Korea. *Asian Social Science* 11(18): 144–152.
- World Customs Organization. 2018 *Post-Clearance Audit (PCA) Volume 1* (Vol. 1, Issue June 2012).
- Xiao, T., Geng, C. & Yuan, C. 2020. How audit effort affects audit quality: An audit process and audit output perspective. *China Journal of Accounting Research* 13(1): 109–127.
- Yeo, G. & Neal, A. 2008. Subjective cognitive effort: A model of states, traits, and time. *Journal of Applied Psychology* 93(3): 617–631.
- Zeglat, D. & Janbeik, S. 2019. Meaningful work and organizational outcomes: The mediating role of individual work performance. *Management Research Review* 42(7): 859–878.

Mohmad Hazar Ahmad (corresponding author)
School of Business and Economics
Universiti Putra Malaysia
43400 Serdang, Selangor, MALAYSIA.
E-Mail: mohmadhazarahmad@gmail.com

Mazlina Mustapha
School of Business and Economics
Universiti Putra Malaysia
43400 Serdang, Selangor, MALAYSIA.
E-Mail: mazlina@upm.edu.my

Yusniyati Yusri
School of Business and Economics
Universiti Putra Malaysia
43400 Serdang, Selangor, MALAYSIA.
E-Mail: atieyy@upm.edu.my

Saira Kharuddin
School of Business and Economics
Universiti Putra Malaysia
43400 Serdang, Selangor, MALAYSIA.
E-Mail: saira@upm.edu.my