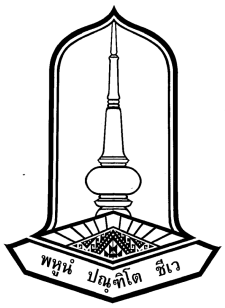

EFFECTS OF PROFESSIONAL AUDIT PROFICIENCY ON AUDIT EFFECTIVENESS: AN EMPIRICAL EVIDENCE FROM TAX AUDITORS IN THAILAND

BY

NANTIYA PROMTONG

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Accounting at Mahasarakham University

January 2018

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ABSTRACT

The key research objective of this research is to examine the effects of professional audit proficiency on audit effectiveness of tax auditors in Thailand. Professional audit proficiency is divided into five dimensions, namely, audit learning capability, audit method integration, audit technology implementation, audit skepticism orientation, and audit ethics focus. Additionally, audit outcomes are comprised of audit quality, information benefit enhancement, information reliability increases, and audit effectiveness. On the other hand, its antecedents are audit survival commitment, continuous audit improvement, audit experience diversity, technology development growth, and stakeholder pressure intensity. In the relationships examined, two moderators which consist of knowledge management competency and sustainable mindset are also tested for their influence that may affect the relationships of professional audit proficiency's outcomes and antecedents. Here, 296 tax auditors were chosen as a sample of the research. The data was gathered by a questionnaire and then analyzed by using inferential statistics which were multiple regression analysis.

The results conclude that audit skepticism orientation has a positive effect on all audit outcomes; however, this effect on audit quality is converted to a negative affect when it is moderated by knowledge management competency. In addition, audit learning capability has a positive effect on audit quality and audit effectiveness. Besides, audit method integration and audit ethics focus positively affect audit quality and information reliability increase. Likewise, audit technology implementation is a positive effect on information benefit enhancement and audit effectiveness. Additionally, audit quality has positive influences on information benefit enhancement

and information reliability increase. Both information benefit enhancement and information reliability increase have positive influences on audit effectiveness.

Regarding the influence of antecedents on each dimension of professional audit proficiency, the study finds that both audit survival commitment and audit experience diversity have positive influences on all dimensions of professional audit proficiency; however, this determinant does not have an influence when it is moderated by sustainable mindset. Likewise, these results are discussed thoroughly in this research, including theoretical and practical contributions that are presented. Furthermore, suggestions for future research are also highlighted.

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CHAPTER I

INTRODUCTION

Background

Accounting fraud of high-profile companies such as Enron, WorldCom, Tyco International, and Health South has affected the accounting profession, especially audit professionals, while the failure of audits has been diagnosed as a cause of these accounting scandals (Roy, 2015). These accounting scandals damaged the public perception of auditors, specifically as to trust and credibility of auditors because users expect that auditors must be able to detect general fraud and provide reliable and useful audited financial information for decision-making (Persons, 2005; Pflugrath, Bennie, and Chen, 2007; Salehi, 2010). In this case, regulators try to restore the public confidence by releasing new auditing standards, International Standards on Quality Control, and International Education Standards for Professional Accountants (IES) to provide guidance about auditing and to improve the quality of accounting professionals. However, accounting scandals have continually occurred, such as the discovery of hidden financial losses for more than twenty years at Olympus and the creative accounting of Tesco and Toshiba, which are the result of a failure to perform auditing duties (Tangruenrat, 2016).

Accounting scandals have highlighted the importance of audit functions. Auditing is a tool for improving the financial information, reducing uncertainty and risk in the decision-making of stakeholders. Stakeholders rely on the information in auditing reports in making decisions about investments, loans, products, services, and other issues (Salehi, 2010). On the other hand, an audit becomes useless if it fails to provide benefits to business owners or others who have an interest in it. Therefore, auditors must pay attention to the process to perform audits and focus on how they do their duties if they want to win back society's trust. Successful operating behaviors like audit proficiency are critical to performing an effective audit (Asmara, 2016).

Additionally, as businesses become increasingly complex, the auditing profession must ensure that they obtain sufficient competence to support financial

statements assertions. The specific knowledge, skills, and attributes that were deemed necessary in the past may no longer apply. As the business environment continues to change rapidly, auditors must adapt their proficiencies to ensure their competence and are prepared to meet the challenges that lie ahead. Therefore, it is interesting to understand how audit proficiency drives audit outcomes and how audit proficiency is developed.

Previous studies have suggested that audit proficiency has an effect on the quality of audit outputs and audit effectiveness; and ensure that financial information is reliable and useful (Ahmad, Kausar, and Azhar, 2015; Al-Khadash, Nawas, and Ramadan, 2013; Zarefar, Andreas, and Zarefar, 2016). A high level of audit proficiency allows auditors to perform tasks that will provide better services, respond to expectations of users, and live up to the expectations of audit targets because auditors are able to perform an audit in accordance with auditing standards, interpret the audit standards as well, handle uncertainty, give better judgments, and act fairly without being influenced by the pressures of other parties (Asmara, 2016). Consequently, audit proficiency raises the effectiveness of the audit, conveying the audited financial information with reduced uncertainty and risk for the decision-making of stakeholders, reducing audit failures, and enhancing the stakeholders' confidence. Thus, audit proficiency plays an important role in audit functions (International Accounting Education Standards Board (IAESB), 2008; Institute of Internal Auditors (IIA), 2016).

The proficiency concept is applied to the assessment of individual performance that identifies behavior factors related to job performance (Zaim, Yasar, and Unal, 2013). Proficiency as behaviors demonstrate that individuals can apply what they know and can do the full range of practical activities they are expected to perform on the job. Previous studies define proficiency as the ability to apply or use knowledge, skills, attitudes, qualifications, and experiences to successfully perform critical audit tasks and operate in a given role (Furiady and Kurnia, 2015; Palmer et al., 2004; Samuel and Afiah, 2013). In addition, audit is a process of collecting and evaluating evidence of the financial statements to verify and report the degree of information in accordance with criteria of related standards (Arens, Elder, and Beasley, 2012). Moreover, professional

auditors act with systematic knowledge and understanding to operate public services (Adeyemi and Fagbemi, 2011).

Presently, professional audit proficiency emphasizes auditors' behaviors that use and apply their proficiency for the purpose of completing audit duties. Therefore, professional audit proficiency refers to the ability of auditors to completely perform audit functions through application or use of knowledge, skills, and attitudes associated with a profession, which leads to the raising of the quality of audit services, responding to stakeholders needs, and achieving the goals of the audit (Furiady and Kurnia, 2015; IAESB, 2008; Tudor et al., 2013). Knowledge will help auditors understand the accounting system and internal controls that are applied differently in each firm and understand the overall picture of situations. Skills will help auditors integrate their audit methods and use technology that is increasing the chance to gather the correct evidence and reduce audit times such as in the auditor who has technological skills and may identify the potential risk of transactions via computer. In addition, the right attitude assists auditors to choose the tests of transactions where errors may be found or when faced with ethical dilemmas that can decide a suitable way to respond.

The research motivation consist of, first, previous studies which found that an Indonesian auditor's proficiency has influenced the quality of audit results (Samuel and Afiah, 2013). Moreover, Thailand and Indonesia are in the Association of South East Asian Nations community but have different social, cultural, and political environments (Business Information Center, 2016). Also, the difference of the sample of the country that has different environmental factors may affect an auditor's behaviors and audit outcomes differently (Taqi, 2013). It is interesting to study how professional audit proficiency affects audit results, especially in Thailand. Second, tax auditors adjust their behavior according to the environment in which a regulator is working and the behavior of the clients. Tax auditors employ different characters or change their method when dealing with the public (Muhammad, 2013). Agreeably, the social cognitive theory explains that the auditor's behavior is the result of the interaction between environmental factors and personal factors. It is interesting to study how personal factors and environmental factors affect auditors' professional audit proficiency. Furthermore, IES 8 required that professional audit proficiency for auditors consist of professional

knowledge in accounting and auditing, professional skills in information technology and skills needed to audit, and professional attitudes in the audit profession (IAESB, 2008). Attractively, prior researchers in the professional audit proficiency area are conducted in each issue independently. Thus, this research is a comprehensive study of professional audit proficiency under IES 8. Moreover, IES 8 is a standard which is mostly applied for certified professional accountants that do not yet confirm what a key competency for audit professions is. Hence, this research applies this concept to a tax auditor's proficiency who has responsibilities to verify enterprises' financial statements in Thailand, which can serve as a basis for a better understanding of an important professional audit proficiency in a tax audit context.

Interestingly, PricewaterhouseCoopers confirms that, in Thailand, 55% of 261 participants have experienced fraud. Although 18% is related to accounting, it mainly involves making fraudulent transactions and avoiding detection by manipulating financial records (PricewaterhouseCoopers, 2016). It is an important problem affecting the credibility of financial information and stakeholders' confidence. Thus, this problem has highlighted the need for an increase in audit quality (Collis, Jarvis, and Skerratt, 2004). It makes the ability to complete audit duties extremely important as well, especially in the context of Thailand.

In this research, the dimensions of professional audit proficiency are developed from the principle of IES 8 that consists of five dimensions, including: a) audit learning capability, b) audit technology implementation, c) audit method integration, d) audit skepticism orientation, and e) audit ethics focus. Firstly, audit learning capability is an ability to increase knowledge through prior work reviews, analysis of an event in the past, interpreting new audit issues, and adapting to perform audit tasks in order to meet the requirements of audit standards (Al-khaddash, Nawas, and Ramadan, 2013; Lysaght and Altschuld, 2000). Regarding audit learning, previous research has been conducted from the point of view of education learning. However, the point of view of this research is a focus on work-based learning or experiential learning. Secondly, audit method integration is the ability of the auditor to combine a range of audit approaches into audit activities to collect sufficient evidence to support the audit opinion (Calota and Vinatoru, 2015). Most of the research has been conducted specifically on each issue

of audit methods independently, such as research on the audit confirmation process (Janvrin, Caster, and Elder, 2010). Thirdly, audit technology implementation is a capability to use a computer, audit software, and tools such as Microsoft Office, databases, electronic networks, and the other software and hardware in audit tasks (Bahador and Haider, 2013; Damasiotis et al., 2015; Maria and Ariyani, 2014). It can help auditors in carrying out inspection tasks efficiently, and reduce the time an auditor spends on each audit (Drogalas et al., 2015). Fourthly, audit skepticism orientation is the ability of the auditor who focuses on applying and maintaining skepticism throughout the audit work that will enhance the quality of audit results (Coppage and Shastri, 2014; Nelson, 2009). Finally, audit ethics focus is the ability to apply the ethical principles in the context of an audit and determine an appropriate way to respond when faced with ethical dilemmas (Taddei and Siddiqui, 2016). The auditors who focus on a code of ethics are able to provide reliable information and increase the credibility of auditors that will lead to improvement of audit outcomes (Khodapanah et al., 2013).

Accordingly, the capability theory and social cognitive theory have been applied to describe the relationship between variables. The capability theory is a broad normative framework used in well-being assessment in terms of what a person is actually able to do or be (Sen, 1979). The capability approach can be viewed in either the utility-based approaches or the resource-based approaches. In the context of this research, the capability approach is used to explain the resource-based approaches; professional audit proficiency is an auditor's resource that considers professional audit proficiency as the capacities of doing things that the auditors have reason to value. Auditors should use their resources to reach their desired value. In this research, auditors' resources comprise knowledge, skills, and professional attitudes needed to perform audit roles. The possession of an auditor's resources (professional audit proficiency) gives an indication that an individual has the ability to perform competently. Moreover, the social cognitive theory explains professional audit proficiency and antecedents. The social cognitive theory sees personal behavior as the result of personal and environmental influences (Bandura, 1989). According to the social cognitive theory, an auditor's behavior is influenced not only by environmental factors such as technology development growth and stakeholder pressure, but also by

personal factors such as audit survival commitment, audit experience diversity, continuous audit improvement, knowledge management competency, and sustainable mindset.

The contributions of this research have three issues. Firstly, this research expands the theoretical contributions by providing empirical evidence of the professional audit proficiency of tax auditors under the Thai context. In addition, this research investigates all attributes of professional audit proficiency, namely audit learning capability, audit technology implementation, audit method integration, audit skepticism orientation, and audit ethics focus. Secondly, the results of this research help tax auditors understand and identify the key dimensions of professional audit proficiency that should be used or applied to provide valuable audit outcomes to users. Finally, the results of this research contribute to related institutions because the results enable understanding and the reasoning of key factors that stimulate the behaviors of the tax auditor and identify the key capability of tax auditors, especially the Revenue Department, Ministry of Finance Thailand which may use the results of this research in conjunction with the developing of guidelines on the basic requirements of tax auditors' audit proficiency.

Purpose of the Research

The main objective of this research is to examine the effect of professional audit proficiency on audit effectiveness. The specific purposes of this research are as follows:

1. To investigate the effects of each dimension of professional audit proficiency on audit quality, information benefit enhancement, information reliability increase, and audit effectiveness.
2. To test the influences of audit quality on information benefit enhancement, information reliability increase, and audit effectiveness.
3. To examine the influences of information benefit enhancement and information reliability increase on audit effectiveness.

4. To analyze the impacts of audit survival commitment, audit experiences diversity, continuous audit improvement, technology development growth, and stakeholder pressure intensity on each dimension of professional audit proficiency.

5. To investigate the moderating effects of knowledge management competency on the impact of each dimension of professional audit proficiency on audit quality, information benefit enhancement, information reliability increase, and audit effectiveness.

6. To inspect the moderating effects of sustainable mindset on the relationships among audit survival commitment, audit experiences diversity, continuous audit improvement, technology development growth, and stakeholder pressure intensity and each dimension of professional audit proficiency.

Research Questions

The primary research question of this research is how professional audit proficiency has an impact on audit effectiveness. Also, the specific research questions are as follows:

1. How does each dimension of professional audit proficiency affect audit quality, information benefit enhancement, information reliability increase, and audit effectiveness?

2. How does audit quality have an influence on information benefit enhancement, information reliability increase, and audit effectiveness?

3. How do information benefit enhancement and information reliability increase have an influence on audit effectiveness?

4. How do audit survival commitment, continuous audit improvement, audit experiences diversity, technology development growth, and stakeholder pressure intensity have an influence on each dimension of professional audit proficiency?

5. How does knowledge management competency moderate the effect of each dimension of professional audit proficiency on audit quality, information benefit enhancement, information reliability increase, and audit effectiveness?

6. How does sustainable mindset moderate the influence of audit survival commitment, audit experiences diversity, continuous audit improvement, technology development growth, and stakeholder pressure intensity on each dimension of professional audit proficiency?

Scope of the Research

Overall, the main objective of this research is to examine the effect of professional audit proficiency on audit effectiveness. The dimensions of professional audit proficiency are developed from the principle of IES Number 8, namely, audit learning capability, audit technology implementation, audit method integration, audit skepticism orientation, and audit ethics focus. This research examines the effect of professional audit proficiency on audit outcomes consisting of audit quality, information benefit enhancement, information reliability increase, and audit effectiveness, including the moderating effect of knowledge management competency. Also, the existing auditing research found that professional audit proficiency has been caused by many factors that are likely to affect auditors' professional audit proficiency, such as audit survival commitment, audit experiences diversity, continuous audit improvement, technology development growth, and stakeholder pressure. Thus, investigating the impact of these factors on each dimension of professional audit proficiency will be tested in this research, including the moderating effect of sustainable mindsets.

In the detail of each dimension of the main variables, audit learning capability refers to the ability of an auditor to increase knowledge through prior work reviews, analysis of an event in the past, interpret new audit issues, and adapt to perform audit tasks (Al-khaddash et al., 2013; Lysaght and Altschuld, 2000). Audit method integration refers to the ability of an auditor to smoothly and efficiently combine various audit techniques, audit steps linkage, and coordination about audit procedures together into audit activities (Calota and Vinatoru, 2015). Audit technology implementation refers to the ability of an auditor to use a computer, software, and tools in audit activities, which allows one to obtain appropriate evidence electronically (Bahador and Haider, 2013; Damasiotis et al., 2015; Maria and Ariyani, 2014). Audit skepticism orientation refers to the ability of the auditor to perform audit tasks with a questioning mind, be alert to

situations that may cause errors or fraud, and evaluate and summarize the audit evidence carefully (American Institute of Certified Public Accountants (AICPA), 2012; Laohamethanee, Ussahawanitchakit, and Boonlua, 2013). Audit ethics focus refers to the ability of an auditor to apply the ethical principles in the context of an audit and determine an appropriate way to respond when faced with ethical dilemmas (Taddei and Siddiqui, 2016; Ussahawanitchakit, 2012).

The capability theory and social cognitive theory are applied to explain the phenomena and the positive relationship between variables in the conceptual framework. The capability theory is the main theory that explains why auditors should focus on professional audit proficiency. The capability theory is a broad normative framework for the evaluation and assessment of individual well-being. The core concept focuses on what people are effectively able to do and to be which are their capabilities. The capability approach can be viewed in either the utility-based approach or the resource-based approach. In this study, the capability approach is used to explain resource-based approaches; professional audit proficiency is as an auditor's resource, which is to consider professional audit proficiency as the capabilities of doing things that auditors have reason to value. An auditor’s resources are comprised of knowledge, skills, and professional attitudes needed to perform audit roles. Auditors should use their resources to reach what to value, such as audit outcomes. The social cognitive theory is an additional theory that explains that professional audit proficiency is the result of the interrelationships between personal factors and environmental factors that influenced auditors to select and create a set of actions likely to produce desired audit outcomes. Capability theory explains the necessity of auditors to perform their duties with professional audit proficiency. Social cognitive theory explains factors that enhance the professional audit proficiency of an auditor. Both theories can be integrated together because the auditors’ behavior is affected by personal and environmental factors; and then auditors’ behavior has an effect on audit outcomes.

In this research, tax auditors in the Revenue Department list were selected as the sample. In Thailand, external audit professionals were divided into two groups comprised of certified public accountants and tax auditors. Tax auditors have a responsibility to verify partnership enterprises’ financial statements. Besides, most

partnership enterprises use an external accountant to prepare their financial statements (Nawaz, 2012; Ojala et al., 2014). External accountants can create information asymmetry between an external accountant, owner-manager, and other stakeholders. Thus, the partnership enterprises should have a reduction of information differences between stakeholders, made through audit service, that are carried out by a proficient person such as tax auditors (Robu and Robu, 2015). From this reason, the tax auditors' ability to perform audit duties is a vital issue. Moreover, a questionnaire has been used as a tool for collecting data. The testing validity and reliability of the questionnaire are tested by two academic experts, factor analysis, and Cronbach's alpha, respectively. This research uses descriptive statistics, which were mean and standard deviation, as well as using inferential statistics in which multiple regression analysis is used to test the hypotheses.

Organization of the Dissertation

This dissertation is organized into five chapters. Chapter one provides an introduction to this research, purposes of the research, research questions, and scope. Chapter two explains the theoretical foundation, relevant literature review, and develops hypotheses for explaining the relationship between the variables in the conceptual framework. Chapter three describes the research methods and is composed of sample selection, data collection method, non-response bias test, instrument verifications, statistical techniques, and measurement. Chapter four explains the results of hypotheses testing and discussion. Finally, chapter five shows the conclusion, contributions, limitations, and future research suggestions.

CHAPTER II

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

The previous chapter details the overview of professional audit proficiency, research objectives, research questions, and scope of the research. Thus, this chapter describes the theoretical foundation, relevant literature review, and hypotheses development. Overall, professional audit proficiency research can be summarized in two parts as to whether which factors stimulate audit proficiency or how professional audit proficiency affects audit outcomes. Additionally, this research attempts to investigate elements of professional audit proficiency that help an auditor to carry out the works and roles expected of regulators, clients and the general public, and lead to gain the public's respect and confidence. This chapter divides the content into three sections. Section 1 is theoretical foundations that are the capability theory and social cognitive theory. Section 2 is a relevant literature review and hypothesis development. Section 3 is a summary of hypotheses. All sections are as the following.

Tax Auditors in Thailand as the Sample of the Research

In Thailand, there are two independent professionals related to auditing, including tax auditors and certified public accountants. The Revenue Department, Ministry of Finance, Thailand, provides certified independent professionals as tax auditors who have functions to inspect partnership enterprises' financial statements and reports. These enterprises are required to have qualifications as follows: five million baht of capital registration: thirty million baht of total assets; and thirty million baht of total revenues (Revenue Department, 2016). The tax auditor is subject to the same qualifications as certified public accountants regarding education level and passes the exam-qualification. Commonly, the main function of tax auditors is the tax audit that is the action for the gathering of information that allows one to properly evaluate an enterprise's financial statements, the prepared financial statements according to the existing tax legislation and generally accepted accounting principles, and correctly-

reported tax liabilities. Thus, tax audit is performed to ensure firms preparing the financial statement are in accordance with accounting standards. Importantly, they also encourage taxpayers to declare the correct taxable income for paying the right amounts in agreement with tax laws and regulation.

Theoretical Foundations

This research applies the capability theory and social cognitive theory to explain an auditor's motivation and professional audit proficiency to perform audit tasks and provide financial information to serve the public interest. The capability theory is the main theory that is applied to explain the relationship between professional audit proficiency and audit outcomes. The social cognitive theory is the additional theory that is applied to explain the relationship between an auditor's motivation variables and professional audit proficiency in the conceptual model. Both theoretical perspectives can be described below.

Capability Theory

The capability theory is an approach used in well-being assessment regarding what a person can do or be, and the major components are achievement and capability sets (Sen, 1979). Functionings are various aspects of how a person lives, a person's doings and beings, and activities that a person can undertake such as working, being healthy, being part of a society, and being respected. Capability set represents a person's opportunity to able to achieve functionings (Clark, 2005). Moreover, the evaluative focus of the capability approach in human well-being can be viewed in either the functioning (utility-based approaches) or the capability (resource-based approaches). Utility-based approaches consider capability as the end of well-being (functioning); resource-based approaches consider capability as a means which is the method to use capability to reach the goal of increasing well-being (Robeyns, 2003).

A capability approach is not strictly theoretical in that it is a framework of thought, a normative theory of ethics and political philosophy, and an economic framework (Dang, 2014). Accordingly, using the capability approach can serve different goals and different methods which can be applied, such as if the objective is to measure

the quality of life, the roles of capabilities are then to act as social indicators. Hence, if the aim is to measure the work, the roles of capabilities are then to act as proficiency indicators. Also, this research has applied the capability approach for explaining important capabilities and indicates how important each will be in achieving functionings.

In the context of this study, a capability approach is used to explain the resource-based approaches, which consider professional audit proficiency as the auditors' resource for doing things that auditors have reason to value, and to reach the goal of increasing audit outcomes. According to resource-based approaches, professional audit proficiency is as an auditor's resources. Auditors should use their resources to reach that which is to value. In this research, an auditor's resources comprise knowledge, skills, and professional attitudes needed to perform audit roles. The possession of an auditor's professional audit proficiency gives an indication that an individual can perform competently. Summarily, professional audit proficiency focuses on the necessary knowledge, skills, and attitudes of the auditors used to complete tasks.

Overall, this research is classified as the positive assumption that believes that an auditor needs to use professional audit proficiency to satisfy the requirements of stakeholders for increasing the reliability and usefulness of information and the effectiveness of the audit (Adeyemi and Fagbemi, 2011). The capability theory is applied to explain auditors' abilities to complete tasks and try to provide audit outcomes for increasing reliability and usefulness of information and audit effectiveness (Turley et al., 2016). Therefore, professional audit proficiency increases audit results respectively. Nevertheless, an auditor's professional audit proficiency comprises knowledge, skills, and professional attitudes, including audit learning capability, audit technology implementation, audit method integration, audit skepticism orientation, and audit ethics focus, all of which are needed to perform audit roles.

Social Cognitive Theory

According to the social cognitive theory, the person's behavior is influenced by personal factors and environmental factors (Bandura, 1989). The personal factors will govern the manner and level of personal engagement in prescribed activities including those that give form and direction for person behavior. Personal factors are such as

the person's expectations, self-perceptions, beliefs, goals and intentions. For instance, people set goals for themselves and select and create a course of action likely to produce desired outcomes. On the one side, personal behaviors are altered by the environmental conditions. Environmental influences determine which forms of behavior are developed and activated. For example, the advances in electronic technology have an impact on a person's lifestyle which controls how people think and behave. Based on the social cognitive perspective, personal and environmental factors play an influential role in personal behavior and motivate the person's proficiency.

In this research, the social cognitive theory is used to describe the relationships between the auditors' drivers and professional audit proficiency. Auditors' motivation variables consist of personal factors and environmental factors that have influenced auditors to select and create a set of actions likely to produce desired audit outcomes. Personal factors include audit survival commitment, continuous audit improvement, audit experience diversity, sustainable mindset and knowledge management competency; and environmental factors such as technology development growth and stakeholder pressure. These factors are affected by an auditor's professional proficiency. Professional audit proficiency improvement is the result of the interrelationships between audit survival commitment, audit experience diversity, continuous audit improvement, technology development growth, stakeholder pressure, sustainable mindset, and knowledge management competency.

Summarily, both theories explain the auditor behavior in a different aspect, but they can be applied together to explain the relationship of variables in the conceptual model. The capability theory explains the necessity of auditors to perform their duties with professional audit proficiency. The social cognitive theory explains factors that enhance the professional audit proficiency of an auditor. Both theories can be integrated together because the auditors' behaviors are affected by personal and environmental factors; and then, auditors' behaviors have an effect on audit outcomes.

Relevant Literature Review and Hypotheses Development

According to the theoretical foundations, professional audit proficiency is assigned as the independent variable, while audit effectiveness is designated as the dependent variable. In this research, there are five characteristics of professional audit proficiency consisting of audit learning capability, audit technology implementation, audit method integration, audit skepticism orientation, and audit ethics focus. All dimensions affect audit outcomes which compose audit quality, information benefit enhancement, information reliability increase, and audit effectiveness. Knowledge management competency is purposed to be the moderator of professional audit proficiency and audit outcomes. The professional audit proficiency antecedents consist of audit survival commitment, audit experience diversity, continuous audit improvement, technology development growth, and stakeholder pressure. Besides, the sustainable mindset is purposed to be the moderators of antecedents and professional audit proficiency. The relationships of these variables are shown in Figure 1 as follows.

Professional Audit Proficiency

The various financial scandals have led to an increased scrutiny of insufficiency in financial preparing and auditing. Auditing is a process of collecting and evaluating evidence of financial information to verify and report the degree of information in accordance with the criteria of general accounting principles and related standards (Arens, Elder, and Beasley, 2012). The benefits of auditing to society are protecting the public interest via a reliable and timely audit report. Therefore, auditing should be carried out by a proficient person. A proficient auditor would be able to apply their knowledge, skills, and attitudes in the different tasks. The auditor may not only evaluate the evidence, but may be able to argue the information provided by the management. In another way, non-proficient auditors may find it difficult to manage the same audit task. Thus, a non-proficient auditor might ask inappropriate questions and be unable to separate between relevant and irrelevant evidence. It will make the auditor rely on the information and evidence provided by the clients. As a result, the audit outputs will not

be credible as provided by a proficient auditor (Daud, 2007). Clearly, proficiency is important for auditors to successfully carry out their duties.

Proficiency concept is a significant differentiator of performance. Currently, most firms have utilized the proficiency model to select new employees, carry out education and training, assess and develop workers, and evaluate employee performance which identifies behavior factors related to task performance (Zaim, Yasar, and Unal, 2013). Human resource proficiency helps firms to receive superior performance from personnel. Likewise, an individual proficiency can increase individual performance if a person performs their tasks with a high level of proficiency.

The concept of proficiency applies in several areas such as education (language proficiency), human resource management (employee proficiency level), and profession (nurse proficiency, audit proficiency). In terms of the auditing profession, professional audit proficiency is necessary for auditors to perform audit duties (IAESB, 2008; IIA, 2016). The definition of audit proficiency is defined in regulators' aspects and a researcher's aspect. In the regulators' perspectives, audit proficiency is the capability of auditors to perform audit duties and are related to a defined standard concerning real working environments. The regulatory focus on capabilities of auditors to perform audit tasks relies on accounting standards, auditing standards, and related codes of conduct. On the other hand, auditing researchers have defined audit proficiency as the ability of an auditor in applying or using knowledge and skills, to be qualified to successfully perform critical work tasks or operate in a given role, and improve the effectiveness of an audit (Furiady and Kurnia, 2015; Hensen, 2002; Palmer et al., 2004; Samuel and Afiah, 2013). The researchers focus on the ability of an auditor to use or apply professional audit proficiency to achieve the expected outcomes. The summary of the definition of professional audit proficiency is varied as seen in Table 1.

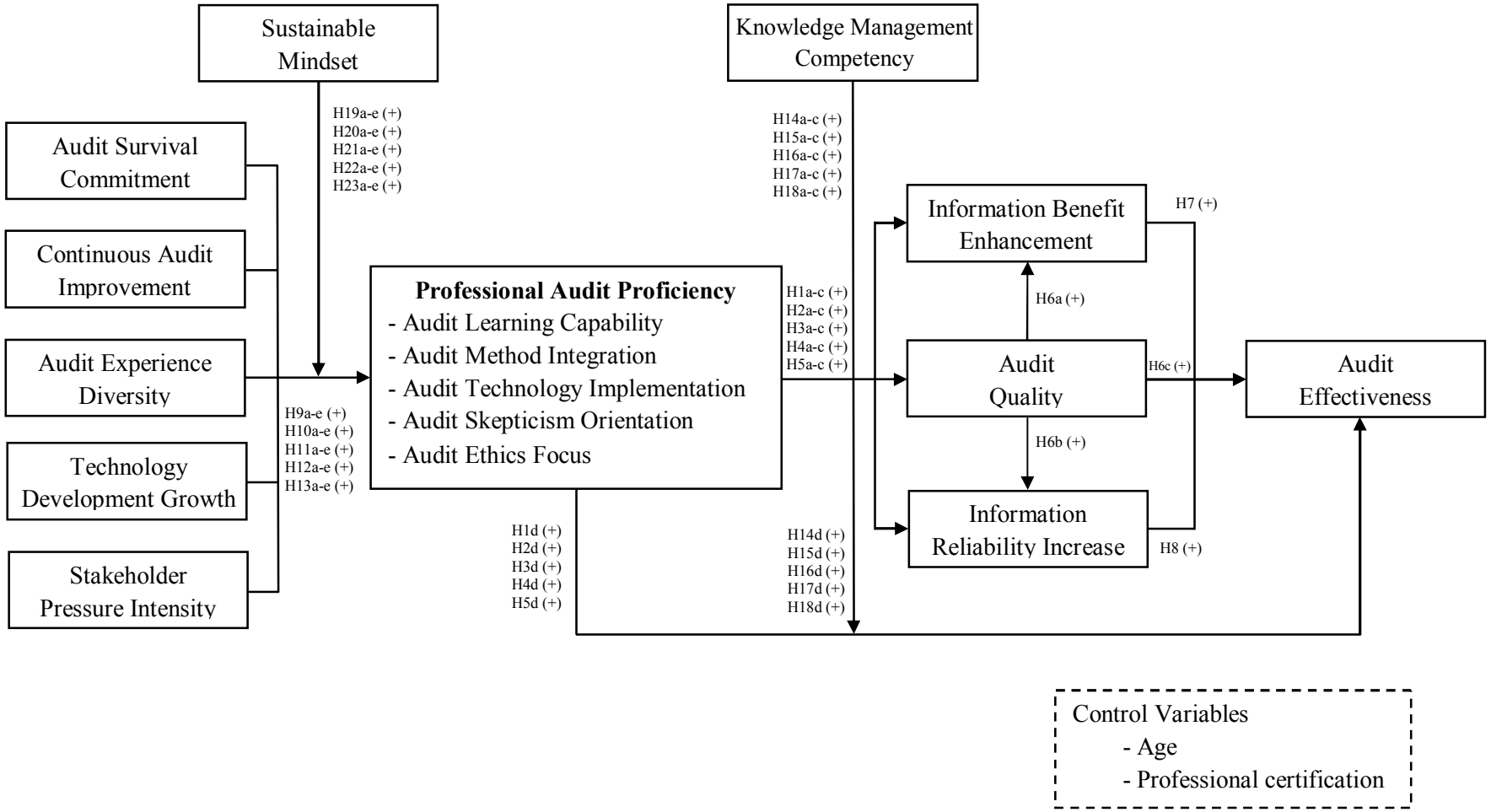
In the context of this study, professional audit proficiency has been defined as the ability of auditors to completely perform audit functions through application or use of knowledge, skills, and attitudes associated with a profession, which leads to the raising of the quality of audit services, responding to stakeholder needs, and achieving the goals of the audit (Furiady and Kurnia, 2015; Ozdemir, Akatayu, and Eroglu, 2015). As knowledge is what a person knows, it consists of “knowing-that” and “knowing-how.” Knowing-that is when a person has academic knowledge about a process or

knowing to do something; and knowing-how is the ability to do something or knowing how to do it (Damasiotis et al., 2015; Lysaght and Altschuld, 2000). Whereby, knowing-how is a demonstration of a person's proficiency. Thus, the second category of knowledge is the viewpoint of this study. Knowledge is acquired through learning or generating from practice. Thereby, the ability to use and apply knowledge which a person has learned is necessary when a person must do something.

Table 1: The Summary of Definition of Professional Audit Proficiency

Author(s)	Definition
Hensen (2002)	The capability of people to integrate their knowledge and acquired skills to meet the conditions of their work.
Palmer et al. (2004)	The ability to perform the duties and roles expected of a professional accountant to the standard expected by the public and employers.
Pflugrath, Bennie, and Chen (2007)	The degree of which an auditor can apply and comply with the professional standards.
Boyatzis (2008)	An original characteristic of a person that cloud be a motive, skill, trait, or body of knowledge which he/she uses.
Baharud-din, Shokiyah, and Ibrahim (2014)	The ability of the auditor to operate the systematic and discipline audit method to increase the effectiveness of audit.
Ozdemir, Akatayu, and Eroglu (2015)	Necessary information, skills, capability and individual characteristics to perform a work successfully.
Furiady and Kurnia (2015)	The ability of an auditor to apply the experience and knowledge that have been possessed in auditing.

Figure1: Conceptual Model of Effects of Professional Audit Proficiency on Audit Effectiveness



In the context of this research, knowledge, and what auditors learned from present situations and past experiences, will help them understand the accounting systems and internal controls that are differently applied in each firm, and understand the overall picture of situations (Daud, 2007). Therefore, auditors should apply or use their knowledge to analyze, synthesize, and interpret audit contexts; and then manage the audit procedures and techniques to verify the accounting transactions.

Next, skills are the use of knowledge and process for a job (Lysaght and Altschuld, 2000). Skills are acquired through deliberate and systematic efforts to adaptively perform complex activities or job functions. Also, skill is insufficient to indicate a person's proficiency, but the ability to transfer skills to practice for a successful job is demonstrated by a person's proficiency. In the context of this study, skills will help auditors combine audit methods and use audit technology that is increasing the chance to gather sufficient and appropriate audit evidence and reduce spent audit resources.

Additionally, appropriate attitudes are also important for auditors. Attitude is a quality of mind that reflects the characteristics of a person which is both positive and negative (Perloff, 2016). Thus, if a person assesses the behavior as being a positive attitude, and if they think others want them to do some behavior, a person will have a high intention and will be more likely to do it. In the context of this study, the ability to use or apply appropriate auditor attitudes to perform audit duties is indicated as an auditor's proficiency. The right attitudes assist an auditor to choose in testing transactions that have errors or fraud which may be found, or when faced with ethical dilemmas that can decide a suitable way to respond (Daud, 2007). In summary, it is clear that professional audit proficiency is determined by knowledge, skills, and attitudes of the auditors.

Professional audit proficiency remains a challenge. It is evident in the continual research on this issue. Based on the literature, there are two streams of literature on professional audit proficiency: a first stream comprises studies which focus on seeking for what is essential professional audit proficiency for an auditor; the second stream emphasizes investigating the relationship between audit proficiency and audit outcomes. Explicitly, the present research is focused towards the second stream of study.

In the first stream, researchers try to identify the characteristics of professional audit proficiency necessary to successful tasks. For example, prior research identifies common and specialized proficiencies by comparing international competency study results in the years between 1989 and 2003, which reported that interpersonal skills, communication skills, problem-solving skills, information technology and computer skills, business knowledge, accounting knowledge, personal attitudes, and capabilities are important for the knowledge, skills, and abilities of auditors (Palmer et al., 2004). Moreover, oral and written communication skills, problem-solving skills, teamwork, intellectual, continuous learning, and interpersonal skills are required for success in the workplace (Kavanagh and Drennan, 2008; Wells et al., 2009). In addition, professional integrity, assessing audit evidence, a questioning mind for information technology systems, accounting knowledge, auditing standards, rules, and regulations are the most important skills, knowledge, and attitudes for auditors in dealing with the complexities of the economy (Elefterie and Badea, 2016; Moradi, Salehi, and khosropanah, 2011; Siriwardane, Hu, and Low, 2014; Turley et al., 2016). From the above mentioned, it seems that the characteristics of professional audit proficiency cannot be changed over time. A significant basic proficiency such as communication, interpersonal skills, information technology, computers, accounting and auditing knowledge remain. While time changes, it increases the requirements of basic professional audit proficiency to respond to complexities of the economy such as information technology systems, integrity, a questioning mind, and assessing audit evidence.

In the second stream, auditing research emphasizes study of the relationship between professional audit proficiency and audit outcomes. The existence of auditing research suggests that professional audit proficiency has taken affect towards the quality of audit outputs (Zarefar, Andreas, and Zarefar, 2016). Prior research demonstrated that if the auditors' professional audit proficiency increases, then they have deeper knowledge, are able to handle uncertainty, are able to work with others, can give better judgment, and also are have the expertise to use computers. So, the audit quality is improving as well because the auditors can operate audits accurately, carefully, and objectivity (Furiady and Kurnia (2015). Furthermore, for auditors to be responsible for the quality of audit task at a varying complexity and scope, auditors should have sufficient proficiency to be able to create audit reports accurately, creditably and

usefully (Samuel and Afiah, 2013; Syamsuddin et al., 2014). Therefore, the knowledge, skills and personal quality of auditors are important factors that determine auditor quality, so that enhancing auditors' proficiencies means improving auditor quality (Cheng, Liu, and Chien, 2008). Additionally, professional audit proficiency enhances financial information that is reliable and relevant because proficient auditors play a major role in improving the quality of information and assuring users about the reliability of information (Moorthy et al., 2011). Moreover, it has a significant, positive relationship as to the effectiveness of an audit because high auditor proficiency is perceived of as increasing both client satisfaction and is useful to stakeholders which reflects on auditors who earn their effectiveness (Ahmad, Kausar, and Azhar, 2015; Ohman, Hackner, and Sorbom, 2012). Furthermore, auditors' proficiencies determine effective internal auditing, and contributes to the ability of the auditors to operate a systematic and disciplined audit approach to enhance the effectiveness of an internal audit and the use of information system tools that can enable tax auditors to achieve audit effectiveness (Baharud-din, Shokiyah, and Ibrahim, 2014; Drogalas et al., 2015).

As a result, auditors need to have adequate proficiency in performing a performance audit; and since audit performance is determined by an auditor's knowledge, skills, and attitudes; thus, there is an expectation that increased knowledge, skills, and attitudes will lead to a superior result I n efficient and effective audits. As aforementioned in the prior research here, the focus is on the second stream for examining the effect of professional audit proficiency on audit outcomes and attempting to indicate elements of professional audit proficiency that perform the tasks and roles expected of a regulator, clients, and the general public. It leads one to gain the public's respect and confidence. For the literature review mentioned above, the prior research is summarized and presented in Table 2 as follows.

Table 2: The Summary of Key Literature Reviews on Professional Audit Proficiency

Authors	Title	Key finding
Palmer et al. (2004)	International knowledge, skills, and abilities of auditors/accountants: Evidence from recent competency studies	The important knowledge, skills, and abilities for accountants consist of interpersonal skills, communication skills, business knowledge, accounting knowledge, problem-solving skills, computer skills, information technology, and personal attitudes.
Pflugrarh et al. (2007)	The impact of code of ethics and experience on auditor judgments	The presence of a code of ethics has a positive effect on the quality of the judgments of an auditor.
Kavanagh and Drennan (2008)	What skills and attributes does an accounting graduate need? Evidence from student perceptions and employer expectations	The problem-solving skills, oral and written communication skills, teamwork and continuous learning that the skills required for success in a career in today's accounting world.
Mansouri, Pirayesh, and Salehi (2009)	Audit competence and Audit quality: Case in emerging economy	The majority of believing that competency has an effect on detecting major fraud.
Wells et al. (2009)	Professional skills and capabilities of accounting graduates: The New Zealand expectation gap?	Professional capabilities needed to be successful in the workplace composed of intellectual and interpersonal.

Table 2: The Summary of Key Literature Reviews on Professional Audit Proficiency (continued)

Authors	Title	Key finding
Moradi, Salehi, and khosropanah (2011)	A study of the knowledge of auditors in the field of tax laws: Evidence of Iran	Auditors have adequate knowledge of accounting standards and auditing standards, knowledge rules and regulations necessary for the auditors.
Ohman, Hackner, and Sorbom (2012)	Client satisfaction and usefulness to external stakeholders from an audit client perspective	High auditor proficiency was perceived as increasing both client satisfaction and usefulness to stakeholders, so, the audit as useful to owners and other users if the clients are satisfied with the audit.
Samuel and Afiah (2013)	The Impact of objectivity, proficiency and due professional care of auditors to quality of performance audit results: Survey on audit teams of Jakarta Provincial Inspectorate	The objectivity, proficiency and due professional care of auditors giving positive impact to performance audit results quality. Hence, auditors should have sufficient proficiency to be able to create audit reports accurately, credible and useful.
Al-khaddash, Nawas, and Ramadan (2013)	Factors affecting the quality of auditing: The case of Jordanian commercial banks	The result indicates a positive and significant correlation between audit quality and the proficiency of auditor.
Zaim, Yasar, and Unal (2013)	Analysis the effect of individual competencies on performance: A field study in service industries in Turkey	The competencies have a positive effect on individual performance, it demonstrates that competencies in services sector play a significant role for both individual and organization performance.

Table 2: The Summary of Key Literature Reviews on Professional Audit Proficiency (continued)

Authors	Title	Key finding
Baharud-din, Shokiyah, and Ibrahim (2014)	Factors that contribution to the effectiveness of internal audit in public sector	The audit competency, independence, and objectivity have a significant positive relationship to the effectiveness of internal audit.
Maria and Ariyani (2014)	E-commerce impact: the impact of e-audit implement action on the auditor's performance	Auditor's performance was affected by an e-audit factor that is the higher the e-audit implementation, then higher the auditor's performance.
Siriwardane, Hu, and Low (2014)	Skills, knowledge, and attitudes important for present-day auditors	The most significant skills, knowledge, and attitudes for auditors are professional integrity, having a questioning mind, and assessing audit evidence.
Syamsuddin et al. (2014)	The influences of ethics, independence, and competence on the quality of an audit through the influence of professional skepticism in Bpk of South Sulawesi, Central Sulawesi, and West Sulawesi	The competence of auditors affect the quality of the auditors; thus auditors must have the sufficient professional skills to carry out auditing duties.

Table 2: The Summary of Key Literature Reviews on Professional Audit Proficiency (continued)

Authors	Title	Key finding
Furiady and Kurnia (2015)	The effect of work experiences, competency, motivation, accountability, and objectivity towards audit quality	The competency, accountability, and objectivity has significant impact towards audit quality. Auditors have deeper knowledge and give better judgment to achieve audit quality. Objectivity helps the auditors to be able to act fairly without being influenced by other parties.
Ahmad, Kausar, and Azhar (2015)	HR professionals' effectiveness and competencies: A perceptual study in the banking sector of Pakistan	The HR Professionals' Competencies have a significantly high correlation with HR Professionals' Effectiveness.
Idawati (2015)	Effect of audit rotation, audit fee and auditor competence to motivation auditor and implications on audit quality	Auditor competence and motivation effect on audit quality, thus, to maintain the reliability of financial reporting with the international accounting standards, the auditors should improve technical expertise as a forensic auditor
Octavia (2015)	The effect of competence and independence of auditors on the audit quality	Materiality misstatement depends on the quality of the auditor's understanding, therefore, the higher the competence and independence of the auditor improving the higher the quality of the resulting audit.

Table 2: The Summary of Key Literature Reviews on Professional Audit Proficiency (continued)

Authors	Title	Key finding
Turley et al. (2016)	Skills, competencies and the sustainability of the modern audit	Auditor should concern about the accounting knowledge, the abilities with modern-day IT systems, the need for proficiency in issues affecting particular sectors and managing with the complexities of economic oriented valuation models.
Roy and Saha (2016)	Relationship of statutory auditors' competence and independence with audit quality	The statutory auditors' competence and independence impaired the quality of audit but a continuous learning process can improve it.
Elefterie and Badea (2016)	The impact of information technology on the audit process	Computerization requires a fast and easy access to audit files. Thus, the auditor's task is carried out in suitable conditions and increased efficiency.
Zarefar, Andreas, and Zarefar (2016)	The influence of ethics, experience, and competency toward the quality of auditing with professional auditor skepticism as a moderating variable	The ethics, experience, and competency was taking effect toward the quality of auditing output, and professional skepticism was not moderating between competency and the quality of auditing output.

Professional audit proficiency is important to create a successful audit task, the quality of audit results, the reliability and benefit of audited financial information, and audit effectiveness. Audited financial information is carried by a proficient person who helps users to assess the audited firm's risks, uncertainty, and the company's ability to

continue operations. The better assessed, audited firm of users reduces information risk that impacts the user's perception of audit utilities that lead to the effectiveness of the audit and the auditors.

International Education Standard 8

International Education Standard 8: Competence Requirements for Audit Professionals (IES8), has been issued by the International Federation of Accountants. This standard requires audit professionals to ensure that it can demonstrate a number of audit competencies. Particularly, section 2 of this standard prescribes the minimum level of professional audit proficiency into five areas: (a) professional knowledge, (b) professional skills, (c) professional values, ethics, and attitudes, (d) practical experience, and, (e) continuing professional development. Moreover, under this section is also described the practical experience and continuing professional development. Practical experience is a necessary condition of certified public accountants, but not required for tax auditors. Also, continuing professional development is also necessary guidance to ensure that auditors develop and maintain their competence. Altogether, both continuing professional development and practical experience are not the main components of professional audit proficiency, but they are support factors that promote the professional audit proficiency of auditors. Hence, this research develops a dimension of professional audit proficiency based on three areas of section 2 of IES 8 that are composed of professional knowledge, skills, and professional values, ethics, and attitudes.

Summarily, professional audit proficiency is developed from the principle of IES that is divided into five dimensions consisting of: audit learning capability, audit technology implementation, audit method integration, audit skepticism orientation, and audit ethics focus. The dimensions development is described as follows.

Professional Knowledge

IES8 indicated that auditors should have a deep and extensive knowledge of financial information, audit standards, financial reporting standards, and other relevant laws. Thus, the ability to acquire and absorb knowledge and be applying the knowledge gained to perform audit tasks to achieve the goals is a component that reflects

professional audit proficiency. Especially, tax auditors must focus on Thai financial reporting standards for non-publicly accountable entities and taxation laws. Based on this concept, it leads to a dimension of audit learning capability.

Professional Skills

Auditors should have the necessary skills of audit methods to identify and resolve the problem, collect and evaluate audit evidence, and include presentations of an audit report. Therefore, the ability to integrate a parallel audit method under existing audit resources (man, money, time) leads to successful tasks that reflect the ability of auditors. Based on this concept, it leads to a dimension of audit method integration. Moreover, auditors should have sufficient knowledge and skills of technology, be aware of the importance of technology, be able to utilize technology, and able to apply existing technology together with new technology to improve workflows and to achieve more efficiency and effectiveness. Based on this concept, it leads to a dimension of audit technology implementation.

Professional Values, Ethics, and Attitudes

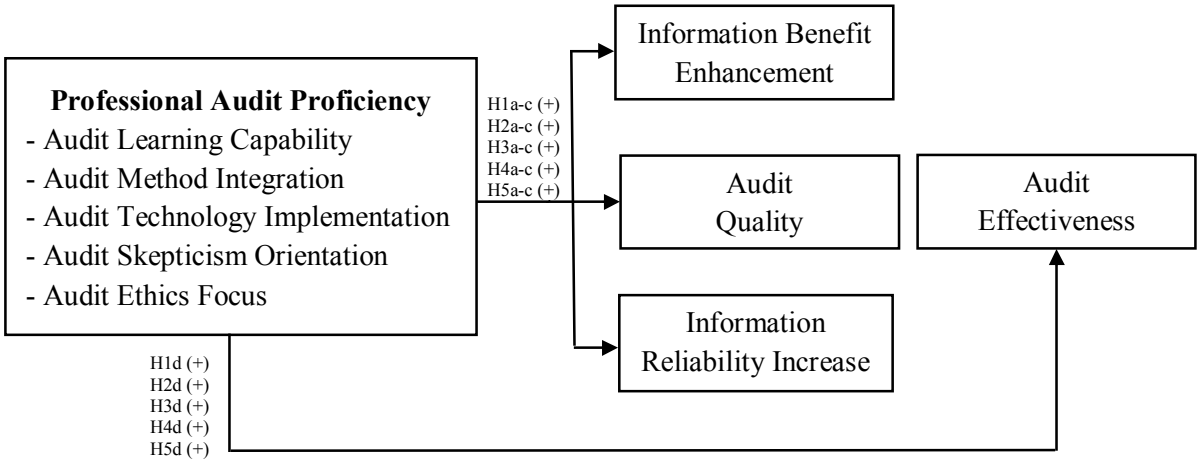
Auditors should be able to apply the code of conduct and be aware of new aspects of ethics and conflicts of audit practices. Because the ethical focus can help an auditor to have suitable decision-making, it is an appropriate method for response when the auditor is faced with ethical conflicting situations. This concept leads to a dimension of audit ethics focus. Moreover, the regulation requires auditors to diligently operate audit tasks without bias or assumption of management dishonesty. Auditors should express and maintain skepticism by observing and continually questioning whether the information received may be a misrepresentation of material. Therefore, observation and suspicion are vital to ensure the quality and reliability of the audit. Based on this concept, it leads to a dimension of audit skepticism orientation.

IES8 sets the minimum level of competence for certified public accountants (CPAs). However, both CPAs and tax auditors are responsible to verify accounts. Therefore, tax auditors require much knowledge and expertise, which is not different from CPAs.

Dimension of Professional Audit Proficiency and Audit Quality, Information Benefit Enhancement, Information Reliability Increase, and Audit Effectiveness

This section discusses each dimension of professional audit proficiency and audit outcomes comprised of audit quality, information benefit enhancement, information reliability increase, and audit effectiveness. In this research, the dimension of professional audit proficiency is divided into five dimensions which are developed by the IES8 principle, namely audit learning capability, audit technology implementation, audit method integration, audit skepticism orientation, and audit ethics focus.
The relationships of these variables are shown in Figure 2 as follows.

Figure 2: The Effects of Professional Audit Proficiency on Audit Quality, Information Benefit Enhancement, Information Reliability Increase, and Audit Effectiveness



The dimensions of professional audit proficiency can explain the meanings and the relationships of each dimension as follows:

Audit Learning Capability

Professional audit proficiency cannot exist without due knowledge (Tudor et al., 2013). Knowledge can be obtained in many ways through formal education and training, participating with others, and work experience such as in comprehensive and other types of audit. Auditors should enrich their knowledge accumulation by

performing both audit services and non-audit services (Beck and Wu, 2006; Joe and Vandervelde, 2007). Knowledge is necessary for audit, but an ability to use or apply their knowledge in the process of performing audit tasks is most significant. Therefore, auditors should be learning from their work, then applying and using what is learned to do their current work. Learning is a changing behavior by actions related to intentions and actual events, and by auditing and modifying the work, including improving performance (Wong and Chueng, 2008; Wiroterat, Ussahawanitchakit, and Muenthisong, 2014). Outcomes of learning are increasing audit knowledge and a better perception of the overall audit process because there can be perception of when and how to adapt one's knowledge or skill in different, more difficult, and more complex situations. Moreover, an auditor's knowledge increases through examination-based learning and work-based training or experiential learning (Marriott et al., 2011). Examination-based learning occurs via participating in education or training. On the other hand, experiential learning occurs through the auditor proofreading and verifying a previous working paper, analysis or synthesis with weaknesses and errors, and interpret auditing and related accounting issues which enhance the audit knowledge of auditors (Al-khaddash, Nawas, and Ramadan, 2013). Moreover, auditors mainly acquire technical knowledge on the job through work together with others, taking action after carefully observing, watching, and hearing from others (Wong and Cheung, 2008).

Here, this research emphasizes learning by the experiential aspect. A capability is a process that can be deployed through individual ability that can be applied and exploited. Hence, audit learning capability is important for auditors because it helps to develop the audit duties. Presently, audit learning capability refers to the ability of an auditor to increase knowledge through prior work reviews, analysis of an event in the past, interpreting new audit issues, and adapting to perform audit tasks (Al-khaddash, Nawas, and Ramadan, 2013; Lysaght and Altschuld, 2000). Audit learning capability is the growth of an auditor's tacit and explicit knowledge for understanding, enhancing, and changing existing and newly-emerging audit work practices.

Audit learning capability regarding present situations, present client problems, previous work, and other experience, can enhance the quality of audit outputs by the suitable planning of audit methods for collecting and assessing audit evidence.
An auditor's knowledge assists an auditor to understand a client's accounting system

and internal controls which are adopted specifically for each client (Carpenter, Durtschi, and Gaynor, 2011). Moreover, audit learning capability will support auditors for appropriately interpreting and applying accounting standards, auditing standards, and related codes of conduct, including understanding management information guarantees. Previously, auditors who learned from actual audit experiences such as from fraud cases or non-audit service can improve and increase the ability to identify fraud risk indicators (Carpenter, Durtschi, and Gaynor, 2011). They make judgments with a lower error rate and find more errors and item mistakes, thus, having an effect on audit quality (Beck and Wu, 2006). Therefore, if auditors believe in audit quality, information benefits are enhanced, information reliability increases, and the audit is effective, which is their goal in what has value. Auditors are more likely to use or apply their knowledge and skills to take action for achieving their goal. Thus, the hypotheses are proposed as follows:

Hypothesis 1a: Audit learning capability is positively related to audit quality.

Hypothesis 1b: Audit learning capability is positively related to information benefit enhancement.

Hypothesis 1c: Audit learning capability is positively related to information reliability increase.

Hypothesis 1d: Audit learning capability is positively related to audit effectiveness.

Audit Method Integration

The auditors have a significant role in supplying reliable, important and relevant information to different clients that will allow users to judge with validity the information received as a basis for business decision-making (Jameleddine, 2001). The auditors' responsibility is to give reasonable assurance that the financial statements of the firm have given a true and fair view of the performance and financial position for the audited firm-year. The auditors' opinion is the identification that the financial statements are free of material misstatement. The auditors' opinion is depending on the

audit evidence obtained from a sample selected for an audit work (International Federation of Accountants, 2009). The auditors should collect sufficient appropriate audit evidence to check the consistency of audit data and criteria. The procedure for obtaining audit evidence is audit methods. Auditing standards require auditors to write audit methods for every audit. The audit method is a set of guidance presented as a detailed approach and used for the gathering of audit evidence (Calota and Vinatoru, 2015). Audit method assists auditors to obtain sufficient audit evidence. Hence, auditors should be carefully designing their audit method within restricted audit resources. The basic audit method consists of verification of documents, inspection of assets, observation, investigation, confirmation, recalculation, re-performance, and review.

In detail, (a) verification of documents is examining the accounting records on transactions, operations, and supporting documents. Documents can be classified into internal and external documents. An internal document is created and used within the client's firm such as a purchase order, copies of receipts, and tax invoices. An external document is generated outside a client's firm such as a bank statement and bills. The objective of this approach is to collect audit evidence to verify the credibility of information that is included in financial statements. (b) Inspection of assets is a physical check, aiming to check the existence of assets. (c) Observation is the use of sense to assess certain activities, aiming to observe the process of operations. (d) The investigation is to collect data by questioning, writing, or oral information from the client in response to questions raised by the auditor, aiming to test the effectiveness of the internal control system. (e) Confirmation is the process of receiving a written response from a third party to confirm the information that was requested, such as an accounts receivable confirmation (Janvrin, Caster, and Elder, 2010). (f) Recalculation is checking the accuracy of mathematics data from accounts such as the recalculation of depreciation of assets. (g) Re-performance is the operation following a client accounting system, aiming to test an internal control system. (h) A review is a process to analyze and verify the data to identify critical data that may need adjustments (Payne, Ramsay and Bamber, 2010). Moreover, the type of audit tests selected to gather evidence that relates audit risk and audit method (Bedard, Graham, Jacjson, 2005). Thus, the auditor should have knowledge about the nature, type, and quantity of sufficient and appropriate audit evidence to support an auditor to give an opinion. Based on the above-mentioned, audit

method consists of many complex and difficult steps, but the auditor must perform within limited audit resources (time, audit team, and equipment). Thus, well-designed audit methods assist auditors to detect fraud in a financial audit, and it will increase the audit quality (Sarwoko and Agoes, 2014).

In this study, audit method integration refers to the ability of an auditor to smoothly and efficiently combine various audit techniques, audit steps linkage, and coordination about audit procedures together into audit activities (Calota and Vinatoru, 2015). The advantages of the audit approach linking capability can increase the audit activity's credibility, increase audit confidence, increasing coverage, improve reports, and increase audit effectiveness (IIA, 2012). Thus, the ability to combine audit methods can respond with engagement, the objective of auditing, risk, and internal control; and has an effect on the audit effectiveness (Shoommuangpak and Ussahawanitchakit, 2009). However, there is some prior research which has suggested that the difficulty to request documents during tax audits can lead tax auditors to not perform within the scope of the specification in the notification, which may reduce the effectiveness of the audit (Fatt and Khin, 2012; Fatt and Ling, 2008). Nonetheless, present research believes that the auditors who can integrate audit methods under restricted audit resources are likely to gain greater audit outcomes that include audit quality, information benefit enhancement, information reliability increase, and audit effectiveness. Altogether, the following hypotheses are proposed:

Hypothesis 2a: Audit method integration is positively related to audit quality.

Hypothesis 2b: Audit method integration is positively related to information benefit enhancement.

Hypothesis 2c: Audit method integration is positively related to information reliability increase.

Hypothesis 2d: Audit method integration is positively related to audit effectiveness.

Audit Technology Implementation

Currently, technology is essential to the smooth operations of any company. Different firms and industries have different technology applications and problems. However, technologies are an accepted, necessary tool in modern business (Siew et al., 2017). Firms apply technology to managing product production, marketing, accounting, and so on. From the accounting technology point of view, firms use accounting technology to managing business transactions, recording accounting items, and data processing in their business. Also, technologies usage has an effect not only on accounting practices but also on the auditing practices as well. When the audit's clients, both large and small firms, have already used computers to perform business transaction processing, then auditors must follow the information technology development, databases, accounting programs, and inherent risks in the context of a business with technologies usage. It is necessary for auditors to enhance individual technical and analytical skill sets capable of evaluating the effectiveness of computer systems during work because of a shift in the audit evidence from documentary evidence to electronic evidence (Maria and Ariyani, 2014). The audit practice must change from a traditional to a technological environment (Plumlee and Plumlee, 2008).

Audit technology is hardware and software products that include audit applications, work paper review technology, productivity tools, and the use of information technology specialists that enhance an individual's capability to perform an audit work (Janvrin, Caster, and Elder, 2010). Auditors are expected to have a very high level of technology-related knowledge (Pan and Seow, 2016). Auditors are required not only to be able to test the financial transactions, but also examine management practices. The auditor's ability to understand about the accounting information system can appropriately apply technology for a business characteristic, can suitably apply audit technology that can overcome the risk of fraud, and can detect activities with fraud potential (Olasanmi, 2013). Thus, audit technology implementation refers to the ability of an auditor to use a computer, software, and tools in audit activities which allows one to gather information about the audit work quickly and efficiently (Abou-El-Sood, Kotb, and Allam, 2015; Bahador and Haider, 2013; Damasiotis et al., 2015; Maria and Ariyani, 2014).

Additionally, the quality of audit depends on the extent of technical proficiency in the use of information technology in data processing (Effiok and Bassey, 2015). Auditors use or adapt technology during the audit process to evaluate fraud risk, evaluate inventory existence and completeness, select sample transactions from key electronic files, and sort transactions; they obtain evidence about control effectiveness and check the accuracy of the electronic records (Abou-El-Sood, Kotb, and Allam, 2015). Also, the use of audit technology has significant benefits such as improvement of quality and audit judgment, increasing efficiency and reduced cost of auditing, and providing auditors with an opportunity to align the audit with expectations of the regulators, investors, and clients (Ernst and Young, 2015). Audit technology implementation assists the auditors in carrying out inspection tasks effectively and efficiently to raise the audit quality and the report (Maria and Ariyani, 2014; Siew et al., 2017). However, the vital barrier to using technology is the cost of technology and technology knowledge background of the users (Ansi, Ismaill, and Swidi, 2013; Senik and Broad, 2011). The failure in the application of technologies occurred when not learning and training with changing technology facilities, leading to suffering from the time lag of using outdated technology which reduces the capabilities of the user in their work.

In addition, present and future users of auditing services have an increasing need for reliable, relevant, and timely information; and information technology provides the means to meet them (Elliott, 2002). The auditor's ability to use audit technology could make auditors to ensure the internal control of the client, to access documents and records, as well as to produce adequate information that cannot be performed by using a manual audit approach (Maria and Ariyani, 2014). Furthermore, to be effective, auditors need to use audit technology in everything they do during the audit process and gather evidence electronically, because the ability to use technologies has a significant influence on the quality and effectiveness of the audit (Ismail and Abidin, 2009; Moorthy et al., 2011). Also, the use of information system tools can enable tax auditors to achieve audit effectiveness (Bierstaker, Burnaby, and Thibodeau, 2001; Drogalas et al., 2015). Hence, this research expects that auditors who have higher audit technology implementation tend to obtain greater audit quality, information benefit enhancement, information reliability increase, and audit effectiveness. As a result, the following hypotheses are proposed:

Hypothesis 3a: Audit technology implementation is positively related to audit quality.

Hypothesis 3b: Audit technology implementation is positively related to information benefit enhancement.

Hypothesis 3c: Audit technology implementation is positively related to information reliability increase.

Hypothesis 3d: Audit technology implementation is positively related to audit effectiveness.

Audit Skepticism Orientation

To have a competitive advantage in a present audit environment, auditors should try hard to consider the expectations of clients and maximize satisfaction through carrying out duties by audit proficiency. One element of audit proficiency is audit skepticism, and it is an important attitude for auditors (Siriwardane, Hu, and Low, 2014). According to auditing standards, auditors should plan and perform audits with professional skepticism, recognizing that circumstances might exist that may cause the financial statement to have material misstatements or errors (Federation of Accounting Professions, 2012). The auditing standards are principles-based so that auditors should perform audit tasks with professional judgment. Audit skepticism facilitates a collective exercise of professional judgment in audit decisions such as detailed audit planning, the assessment of audit evidence, the evaluation of management honesty, and giving opinions. The suitable auditor's judgment gives the appropriate audit opinion. Likewise, auditors who are applying and maintaining skepticism throughout the audit work will enhance the quality of audit results (Coppage and Shastri, 2014). On the other hand, auditors without skepticism are not challenged to a situation that indicates potential fraud, and often fail to discover material misstatements and errors (Tangruenrat, 2016). Hence, while the audit task requires sufficient and relevant evidence to support an audit opinion, so audit skepticism is an essential attitude for auditors, when they question something in the audit process and when gathering audit evidence.

Audit skepticism can be divided into two perspectives consisting of a neutral view and a presumptive doubt view (Nelson, 2009). From the neutral view, auditors should perform audit tasks with effort and without bias. For the presumptive doubt view, auditors should work hard on evidence-collecting and pay attention to evidence which indicates any misstatements. The concept of audit skepticism is widely defined as such as a questioning mind and a critical assessment of evidence, the ability to detect fraud, and presumptive doubt (American Institute of Certified Public Accountants (AICPA), 2012; Choo and Tan, 2000; Nelson, 2009). This research defines audit skepticism orientation as the ability of an auditor to perform audit tasks with a questioning mind, be alert to situations that may cause errors or fraud, and evaluate and summarize the audit evidence carefully (AICPA, 2012; Laohamethanee, Ussahawanitchakit, and Boonlua, 2013). Auditors who are skeptical may not accept the statement of a firm but be asking more questions to get evidence and confirm the related object. Without applying audit skepticism, auditors will find errors in an easy case which is not adjustable (Zarefar, Andreas, and Zarefar, 2016).

Prior research has emphasized the importance of the use of audit skepticism. Auditors who are more skeptical will search and collect more convincing evidence and suspending judgment until sufficient evidence is available for a judgment (Hurtt, 2010). Additionally, skeptical auditor acts better in their decision-making and ensure that the financial statements are free from material misstatements or errors and find valuable information sources for financial statement users (Popova, 2008; Silvija, 2014). Also, auditors in a high-skepticism condition have greater effectiveness without sacrificing efficiency and improve the level of audit quality (Carpenter and Reimers, 2013; Knechel et al., 2013; Laohamethanee, Ussahawanitchakit, and Boonlua, 2013). Based on the literature, auditors with the high audit skepticism ability can enhance their audit outcomes such as detecting error or fraud, having accuracy in decision-making, and improving audit quality and financial statement quality. Therefore, an auditor with higher skepticism use will gain superior audit outcomes consisting of audit quality, information benefit enhancement, information reliability increase, and audit effectiveness. As a result, the following hypotheses are proposed:

Hypothesis 4a: Audit skepticism orientation is positively related to audit quality.

Hypothesis 4b: Audit skepticism orientation is positively related to information benefit enhancement.

Hypothesis 4c: Audit skepticism orientation is positively related to information reliability increase.

Hypothesis 4d: Audit skepticism orientation is positively related to audit effectiveness.

Audit Ethics Focus

Extensively, the auditing profession has the ethical challenges of accounting scandals. The ethical omission is an important issue that has caused criticism when accounting scandals occurred. Codes of ethics are important since the auditing profession is faced with unethical behaviors and are intended to provide guidance in ambiguous situations. Ethics are the rules that are based on the difference between right and wrong which are adopted by a certain society. Codes of ethics require behavior and practice beyond the personal moral obligations of an individual so that the public has a level of expectation from the auditing profession (Adeyemi and Fagbemi, 2011). Codes of ethics have been developed by professional agents and firms that lead the audit profession to perform audit duties to follow a code of ethics in an audit task environment. Thus, the code of ethics is influenced by the community cultural environment where the profession is the professional environment, the workplace, and personal experiences (Syamsuddin et al., 2014). However, professional ethics is the most significant attitude for auditors in the present audit environment (Kavanagh and Drennan, 2008; Siriwardane, Hu, and Low, 2014).

Attributes of audit ethics compose integrity, objectivity, confidentiality, and competent and due care (Akenbor and Onuoha, 2013). In detail: (a) Integrity means honesty and fair dealing is respected; (b) Objectivity means avoiding a conflict of interest with the clients, not being influenced by pressure from another party, and

fairness in decision-making; (c) Confidentiality means privacy of information without the client's permission, unless legally entitled, or, it must be disclosed; and, (d) Competent and due care means a person should always give professional service with care, competence and diligence.

Previous research showed that professional ethics reduces the degree of risk, improves communication, and increases productivity (Yazdani, Nikzad, and Alinia, 2013). Thus, the presence of a code of ethics has a positive effect on ethical behaviors. An auditor's ethics is based on an independent level, objectivity, and integrity of an auditor which affects the quality of auditing output (Khampichit and Ussahawanitchakit, 2011; Zarefar, Andreas, and Zarefar, 2016). Additionally, objectivity can assist the auditors to be able to perform fairly without being affected by the judgment of the others. Also, the professional's codes of ethics is a tool of ethical guidance which increases internal audit effectiveness and improves audit quality under the context of greater general experience (Pflugrath, Bennie, and Chen, 2007). In contrast, a prior study report finds that the mere presence and enforcement of professional codes do not affect individual ethical judgment (Pater and Van Gils, 2003).

Moreover, adherence to ethical principles of auditing is necessary for achieving the objectives of audit tasks. In this research, audit ethics focus refers to the ability of an auditor to apply the ethical principles in the context of an audit and determine an appropriate way to respond when faced with ethical dilemmas (Taddei and Siddiqui, 2016; Ussahawanitchakit, 2012). Auditors take all of the professional duties with a high level of integrity, maintain objectivity, obtain confidentiality, and take due care in producing quality audits. The auditors who have a high level of audit ethics can be more understanding about dilemmic situations, seek for proper methods to fix an ethical problem, and are careful to conclude audit opinions. Then, the auditors' high audit ethics focus can handle stress situations, give the best audit judgment, and then be able to provide reliable and useful information because auditors work free from the others' pressure. Audit ethics focus increases the credibility of auditors who will lead to improvement in the image of auditors for a long time (Khodapanah et al., 2013). Therefore, audit ethics focus is a key driver in determining the level of audit quality, information benefit enhancement, information reliability increase, and audit effectiveness. As a result, the following hypotheses are proposed:

Hypothesis 5a: Audit ethics focus is positively related to audit quality.

Hypothesis 5b: Audit ethics focus is positively related to information benefit enhancement.

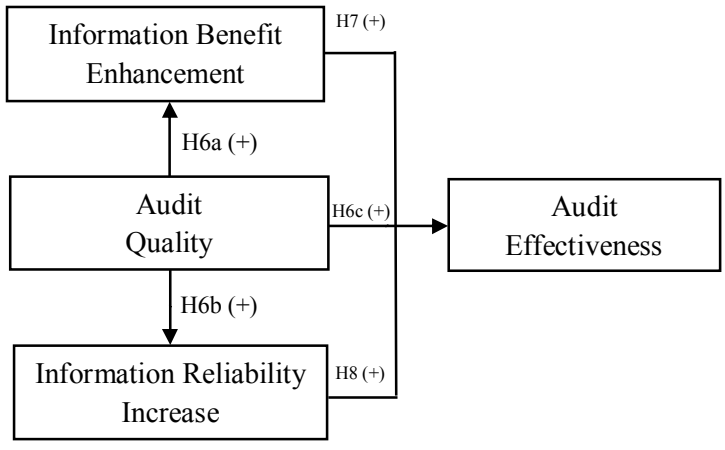
Hypothesis 5c: Audit ethics focus is positively related to information reliability increase.

Hypothesis 5d: Audit ethics focus is positively related to audit effectiveness.

Audit Outcomes of Professional Audit Proficiency

This section discusses the audit outcomes of professional audit proficiency which consist of audit quality, information benefit enhancement, information reliability increase, and audit effectiveness. The relationships among these variables are shown in Figure 3 and the relationship is to be described as the following.

Figure 3: The Impacts of Audit Quality, Information Benefit Enhancement, Information Reliability Increase on Audit Effectiveness



Audit Quality

The financial report scandals involving public accountants and auditors cause continued questioning on the quality of audit, while the failure of the audit is identified as a cause of accounting scandals (Roy, 2015). The failure of the audit can occur in two conditions: when related standards are not followed, and when one fails to issue an audit report in appropriate situations (Francis, 2004). These conditions reflect that: (a) the failure to define the process required to do a job is consistent with standards, (b) a failure to manage fraud reduction and reduce errors in order to ensure audit quality, and (c) a failure to convey significant findings from the audit and relevant information to users, in that the audited financial statements are the channel to transfer firm information to the users. Thus, audit failure has a negative effect on the perceived credibility of the financial information and the quality of the audit.

The audit may result in management making changes to the draft of financial statements such as the clearing up of note disclosures. If changes are not seen by users, they are faced with what they perceive to be high-quality financial statements; and then users may impute that a quality audit has been performed. On the other hand, in a case faced with financial statements that contain numerical errors, inconsistencies, and disclosures that are difficult to understand, or in the nonappearance of a qualified auditor's report, users may conclude that a poor quality audit has been performed (International Auditing and Assurance Standards Board, 2013). Therefore, auditors play a major role in ensuring the continuing operation of the firm and output quality of a financial report, which represents audit quality.

Based on the literature, audit quality is defined as the probability that an auditor will both discover and honestly report material errors, misrepresentation, and omissions in the client's financial statements (DeAngelo, 1981). In addition, an auditor will not issue an unqualified report on statements containing material errors or unresolved disagreements and provide a greater assurance of high financial reporting quality (Christensen et al., 2016; Lee, Gloeck, and Palaniappan, 2007). This indicates that the characteristics of audit quality consist of three viewpoints that include: (i) the ability of an auditor to discover errors and breaches, and reacts to that which is discovered; (ii) the independence to release the opinion; and (iii) the value of audited information.

In addition, audit quality is measure different aspects that include audit input, audit process, and audit output (Brown, Gissel, and Neely, 2016; Francis, 2010; Rajgopal, Srinivasan, and Zheng, 2015). Audit input is auditors who audit with greater quality when the audit is undertaken by proficient auditors such as turnover of the auditor, and the expertise of the auditor. The audit process is the implementation of audit input such as audit fees, and technical competency testing. Audit output is the results of audits such as fraud and other financial reporting of misconduct, and timely reporting of internal control weaknesses. Here, this study measure the audit output of audit quality. Therefore, audit quality refers to the discovery of reporting errors and breaches in financial statements that have occurred, and information in the audit report that is accurate and reflects actual data (DeAngelo, 1981; Knechel et al., 2013; Lee, Gloeck, and Palaniappan, 2007). The major advantage of the discovery of a misstatement and errors is that there is strong evidence of poor (or high) audit quality, because users and regulators believe that fraud prevention is the auditor's priority (DeFond and Zhang, 2014). Thus, the discovery of misstatement measures quality in terms of audit ability while reporting the misstatement. All this depends on the auditor's incentives to disclose.

The audit is one way to give a sign of benefit of the information contained in a financial statement (Watkins et al., 2004). The auditors offer an opinion regarding the presentation in financial statements of the true and fair view of the financial position, information regarding estimation, risk of future cash flow, significant uncertainty, the firm's ability to continue its activity in the future, and performance that follows an accounting framework (Ittonen, 2010). Audit quality explains the ability of an audit to detect and report material misstatements and errors of financial statements, and to reduce the information asymmetry between management and users. Thus, it is beneficial to users at the time of decision-making. Thus, audit quality will enhance the benefit of audited information for supporting users' decisions.

In addition, audit quality is an essential element to make financial reports more reliable. The result of previous reseaech reveals a strong positive relationship between audit quality and the reliability of audited financial statements that the quality of the audit process is a critical factor affecting the reliability of financial statements (Alrshah, 2015; Ethridge and Marsh, 2010). It implies that the auditor's ability to discover

misstatements and errors, and disclosing a financial report problem, are reflected in the audited firm as being free from fraud, with no material misstatements and errors, and being true and fair in view of the firm position and performance. Thus, high audit quality should be associated with reliable, high information of financial statements (Salehi, 2010). Therefore, the quality of the audit is driven by more reliable audited information. Also, quality audit gives birth to quality output which addresses the needs of stakeholders and results in a client's satisfaction (Okpala, 2015). It has an effect toward higher valuation users that enhances high quality as to the confidence of the users and as to an auditor's credibility, image, and reputation (Fan and Wang, 2004; Gunawan and Sembel, 2015; Ohman, Hackner, and Sorbom, 2012; Taqi, 2013). Therefore, audit quality is an important element to improve audit effectiveness.

Based on the aforementioned, audit quality contributes to the reliability and benefit of audited financial reporting which is important for stakeholders' decision-making, is enhancing the level and quality of information for stakeholders' better decision-making, and then leads to gain users' respect. Accordingly, greater audit quality is positively related to more information benefit enhancement, information reliability increase, and audit effectiveness. Therefore, the illustrated relationship is hypothesized as below.

Hypothesis 6a: Audit quality is positively related to information benefit enhancement.

Hypothesis 6b: Audit quality is positively related to information reliability increase.

Hypothesis 6c: Audit quality is positively related to audit effectiveness.

Information Benefit Enhancement

The auditor is going to communicate and report responsibilities regarding matters arising from the audit to owners, management, those charged with governance, and other stakeholders. The auditors play a significant role in supplying significant and relevant information to different clients (Jameleddine, 2001). The objective of an audit

is to provide financial statement users with an opinion by the auditor about the client's audited financial statements is fairly presented, on all material issues, in agreement with an applicable financial standard (AICPA, 2012). Furthermore, the objective of general purpose financial reporting is to provide financial information about the position, performance, and cash flow of a reporting firm that is useful to existing and potential investors, lenders in making decisions about providing resources to the firm. This implies that auditors should provide audited financial information about the performance, position, and cash flow of the audited firm to users with an opinion about the client's audited financial statements is fairly presented, in all material respects, in agreement with an applicable financial standard, which enhances the degree of confidence for users.

Moreover, the benefit of financial information is enhanced when enhancing qualitative characteristics such as verifiability, comparability, timeliness, and understandability (Adrian-cosmin, 2015; Obaidat, 2007). Agreeably, present and future users of auditing services have an increasing need for reliable, relevant, and timely information because users adjust their investment decisions based on the benefit of information that attends and validates disclosed financial statements (Elliott, 2002; Tahinakis and Samarinas, 2015). Therefore, the advantage of audited financial information must fairly present the firm's position and performance that supports all stakeholders in the decision to work with a company. Also, auditors are not only performing or verifying financial statements, but must report that the financial information has enough internal controls; and makes recommendations on internal control and accounting systems, accounting policies, and general business and taxation issues, which are the valuable outcomes from the audit process (Fontaine and Pilote, 2012).

In this present research, information benefit enhancement refers to the potency of presenting audited financial information that raises the degree of confidence of stakeholders' decisions to analyze and evaluate the position and performance of an audited firm accurately and precisely (Adrian-cosmin, 2015; Obaidat, 2007). This information is increasing the public’s confidence when the information relies on accounting regulations such as generally accepted accounting principles, industry-specific standards, and related accounting regulations. Additionally, the information has

good qualitative characteristics which consist of understandability, relevance, reliability, and comparability that increase usefulness for the better decision-making of the stakeholders. Audited financial statements contain information regarding estimation and risk of future cash flow and the firm's ability to continue its activity which is important to supporting users' decisions (Ittonen, 2010). The benefit of a financial statement for owners who take comfort in that the financial statement is fairly presented; and current and potential investors or lenders are less likely to challenge business decisions, investments, or loans. Thus, the utility of the audited information is supporting users' decision-making and is accepted by the users as a relevant source of information (Robu and Robu, 2015; Salehi, 2010).

As mentioned above, information benefit enhancement is likely to relate to audit effectiveness because reflected audit financial information is a valuable source of information that confidently and correctly assists users' decision-making. Thus, the hypothesis is proposed as follows:

Hypothesis 7: Information benefit enhancement is positively related to audit effectiveness.

Information Reliability Increase

Outcomes from accounting scandals introduce the importance of the reliability of information. Also, accounting information has the quality of reliability when information is reasonably free from material error, is neutral, and faithfully represent what it purports to represent (Adrian-cosmin, 2015; Obaidat, 2007). Information is free from errors if the process to produce audited information is selected, is used without errors, and is carried out by a proficient person. Information is neutral if it is without bias in its selection or presentation. Faithful representation represents an economic phenomenon that is depicted in a complete, accurate, and neutral manner (Ernst and Young, 2010).

Reliability is critical of the qualitative characteristic for audited accounting information to be useful for decision-making, which enables the users to rely on information while making financial decisions (Alrshah, 2015). The firms need reliable financial information to attract new investors, and maintain or increase loan credibility.

Auditors need reliable financial information to avoid the pressure or liability from the misleading report. Besides, the reliable audited financial information will depend on the interaction between auditing standards and auditors who implement standards (Maines and Wahlen, 2006). Auditing standards can enhance the reliability of financial information by requiring auditors to make judgments that closely match the underlying economic construct that the standards portray. In this research, information reliability increase refers to the potency of presenting audited financial information that is unbiased, free from error, and reflects actual events and transactions under audit by the principles of fairness and relevant-sufficient evidence (Alrshah, 2015). Information reliability can increase if audited financial information represents qualitative characteristics in accordance with related accounting standards in terms of measurement, record, and disclosure; outcomes from accurate and suitable audit processes; and audit procedures that are carried out by a proficient person.

According to prior research, the users of a firm's financial statements wish that the information is reliable and safe for their decisions, but they are not able to verify for themselves the reliability of the data contained in the financial information (Salehi, 2010). Thus, the auditors play a vital role in helping to ensure that a firm's information is a fair representation of the real picture of that firm. Furthermore, the audit report has positive effects on stakeholder decisions which reflect the value of the audit report. Therefore, information reliability increase is likely to relate to audit effectiveness because reflected audited financial information is unbiased, free from error, and is faithful. Further, it is a signal benefit to stakeholders that leads to creating confidence of the users (Alrshah, 2015). Therefore, the hypothesis is proposed as follows:

Hypothesis 8: Information reliability increase is positively related to audit effectiveness.

Audit Effectiveness

Effectiveness is the degree to which something is successful in producing the desired result. The prior study determined the effectiveness based on the outcomes of actions (Copeland, 2015). Consequently, regarding auditing, effectiveness is the degree of audit results meeting auditors' objectives and/or clients' requirements. Audit

effectiveness is an important successful indicator of the auditor, and auditors tend to focus on effectiveness. Audit effectiveness can be considered in two ways that are the effectiveness of the audit work and the effectiveness of the auditor. In terms of the effectiveness of the audit work, audit effectiveness occurs when stakeholders have trust, satisfaction, and confidence in the audited financial report. Auditing is expected to play a value-adding role by providing financial information which reduces uncertainty and risk for the decision-making of stakeholders (Persons, 2005; Pflugrath, Bennie, and Chen, 2007). Thus, the auditors need to serve the interests of stakeholders which leads to the effectiveness of the audit work (Adeyemi and Fagbemi, 2011; Lasmane and Jakusonoka, 2013).

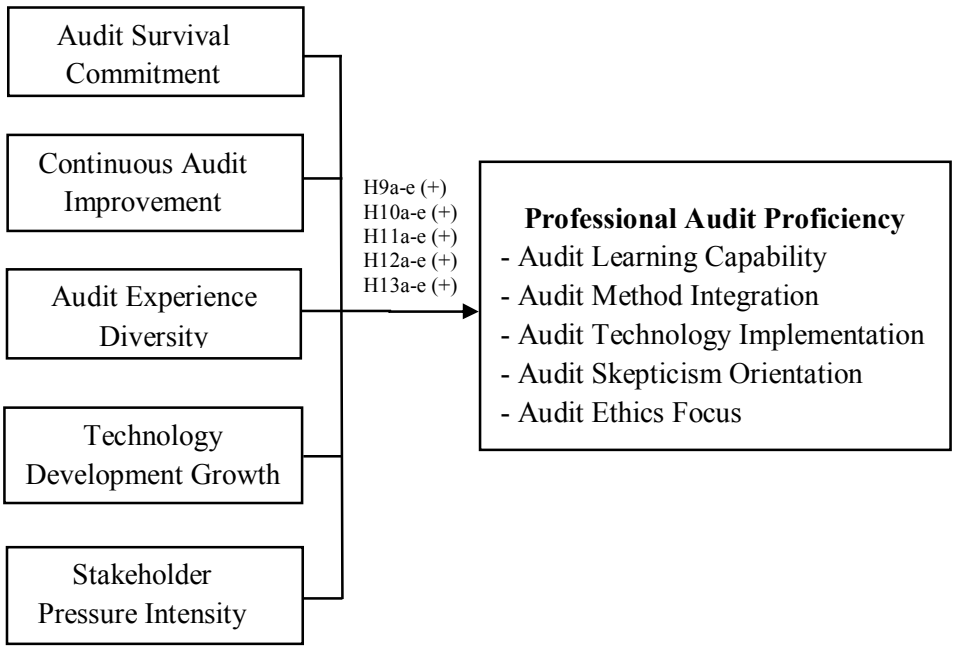
In terms of the effectiveness of the auditor, audit effectiveness occurs when stakeholders perceive ex-ante auditing services regarding the image and reputation of the auditor (Al-Khadash, Nawas, and Ramadan, 2013). The primary product of an audit is audited financial statements which mediate between managements, stakeholders, and auditors. The audit report contains information regarding the company's ability to continually operate; thus the situation is seen as being confident by investors, considering that the auditors have access to companies' internal information which is a firm's private information. Hence, auditors should provide the highest possible level by rules that guarantee audit services with high quality; and is useful, reliable, and true. Auditors who provide their services at a level that is worth the trust of society will gain an appreciation of the quality of auditing service regarding the image and reputation which is a major factor that affects the auditor selection (Robu and Robu, 2015; Tagi, 2013).

In this research, audit effectiveness refers to the degree of achieving an audit objective, retaining existing customers, increasing in new customers, and trusting those who are involved in the audit task (Maayan and Carmeli, 2016). Also, an auditor can practice the audit like a professional. Especially, audits' clients may also perceive of the audit as useful to owners and other users; thus, client satisfaction with the audit work strongly influences what is perceived of as useful to stakeholders. The effectiveness of an audit not only depends on the clients, but also on the contexts in which auditors work (Turley et al., 2016). Hence, the auditor necessarily possesses proficiency, which is basic to goal achievement.

Antecedents of Professional Audit Proficiency

This section discusses the factors that affect professional audit proficiency including audit survival commitment, continuous audit improvement, audit experience diversity, technology development growth, and stakeholder pressure intensity. These factors were investigated from the prior research that significantly relates to professional audit proficiency. Thus, the relationships of the variables are shown in Figure 4 and can be described as follows.

Figure 4: The Effects of Antecedents on Professional Audit Proficiency



Audit Survival Commitment

In the present financial crisis, stakeholders need and expect the superior performance of an auditor. The essential role of auditing is to provide a reasonable assurance of financial statements. Thus, the benefits of auditing to society are protecting the public interest via providing reasonable assurance, reliability, and having timely audit reports. An audit is valued as a tool for improving the financial information used in decision-making. Hence, auditors should carry out their work to meet the needs of

users if they need success and want to survive. Also, audit survival is client satisfaction in audit performance that shows as a client's acceptance and increased revenues.

Research shows that professional commitment is commonly viewed as the strength of an individual's involvement in, and identification with, their profession. It is where an individual's identification with their profession (or their goal) reflects a positive attitude toward their profession or job (Ortegren, Downen, and Kim, 2016). Auditors with professional commitment, trust and accept the objective of the profession, as well as desire to make efforts to achieve the professional objective without being asked (Mela, Zarefar, and Andreas, 2016). The context of this study focuses on auditor commitment to survive in the profession.

Audit survival commitment refers to the auditor's intention to continually remain in the audit profession with a focus on spending more effort to build value for stakeholders, a willingness to work hard to achieve their objectives, spending more time on developing knowledge and skills, and avoiding the use of dysfunctional audit behaviors (Ortegren, Downen, and Kim, 2016). The degree to which an individual has willingness to expend effort on their job, and an intention to remain in a responsibility, determines the level of a person's commitment. Thus, the auditor with audit survival commitment reflects the willingness to spend effort to achieve their goal (Mela, Zarefar, and Andreas, 2016; Paino, Thani, and Si, 2012). Also, the one way to survive in auditing is creating client satisfaction in audit performance. Therefore, auditors will pay attention to identifying what do and how to do their duties if they need to satisfy their client.

Prior research indicated that an individual who possesses a strong belief in the firm and is willing to work hard to achieve a firm goal, should be less likely to resort to unethical or dysfunctional tactics to achieve personal objectives (Paino, Thani, and Si, 2012). Thus, an auditor's belief helps to minimize the occurrence and acceptance of dysfunctional audit behavior, and it impacts audit procedures and audit efforts. In addition, professional commitment affects the intention of whistleblowing, place more emphasis on following rules, and exercising professional skepticism during engagements (Mela, Zarefar, and Andreas, 2016; Ortegren, Downen, and Kim, 2016). For the client commitment, an auditor has perceived support from a client, and has

perceived client fairness that is associated with the extent of a value-added audit service provided to clients (Herda and Lavelle, 2013).

Hence, auditors who possess a strong belief in survival are willing to work hard to achieve their objectives. They should adhere to a code of conduct, emphasize following audit procedures, exercise professional skepticism, and should do everything necessary to satisfy their client by avoiding the use of dysfunctional audit behaviors. Audit survival commitment has important behavioral outcomes, which then is a key driver of auditor behaviors because of auditors committed to existence in their career by spending more time to develop knowledge and skills, expending more effort to build value for stakeholders by responding to demands and satisfying users, as well as having an intention to remain in the occupation. Hence, audit survival commitment is hypothesized to have a positive influence on each dimension of professional audit proficiency. Therefore, the illustrated relationship is hypothesized as shown below.

Hypothesis 9a: Audit survival commitment is positively related to audit learning capability.

Hypothesis 9b: Audit survival commitment is positively related to audit method integration.

Hypothesis 9c: Audit survival commitment is positively related to audit technology implementation.

Hypothesis 9d: Audit survival commitment is positively related to audit skepticism orientation.

Hypothesis 9e: Audit survival commitment is positively related to audit ethics focus.

Continuous Audit Improvement

Currently, the regulators focus on the continuing professional development of the auditor to achieve the objectives of developing knowledge and skills in accounting

and auditing because an auditor must follow both professional accounting and auditing standards. Auditors should develop a level of sufficient knowledge and skills that obtain an understanding of the events, transactions, and practices that have a significant effect on the audit. For example, the deep knowledge of the client's business helps the auditor to set the extent, nature, and timing of audit scope, identifying the nature and source of audit evidence, and collecting and evaluating the sufficiency and appropriation of the audit evidence obtained.

Additionally, auditors' proficiencies are developed through examination-based learning, which refers to training in education, and work-based training which refers to training from an in-house course (Marriott et al., 2011). For examination-based learning, continuing audit improvement occurs via participating education or training such as continuing in professional development program training, and meeting with the external environments such as clients and other auditors, leading to the provision of audit guidance and improvement in audit practice. Continuous education and training may include such topics as current developments in the performance audit methodology, investigation of methods, data-gathering techniques, audit evidence evaluation, and an auditor's report-writing. Continuing education and training will increase an auditor's qualifications, and enhance professional audit proficiency. For work-based training, auditors should seek to enhance and maintain a level of proficiency in auditing through their experience (Al-khaddash, Nawas, and Ramadan, 2013). However, the context of this research focuses on the requirement of auditors for continuing audit improvement through examination-based training. Due to regulatory requirements, tax auditors must attend continuing professional development at least twelve hours per year that includes taxation knowledge and related knowledge (Revenue Department, 2017).

Presently, continuous audit improvement refers to the requirement of auditors to attend education and training in accounting standards, auditing standards, and related programs; and have regular interaction or communication with external environments which allows one to prepare audit guidance and develop audit procedures (Al-khaddash, Nawas, and Ramadan, 2013; Marriott et al., 2011). Due to many uncertainties of the audit process, continuous audit improvement is improving professional audit proficiency for audit procedure analysis, audit risk evaluation, and proper audit program-setting. Interestingly, prior research suggested that continuous training and development for tax

auditors are necessary to increase technical knowledge, communication, and audit skills that can enhance the accuracy and reliability of company financial reporting (Isa and Pope, 2011; Kaspina, 2015). Auditors develop auditing skills and change working procedures via professional development (Lee et al., 2016).

Conversely, the regulators' professional development programs do not include the data that is relevant to individual practices. Thus, that gained information does not apply to practice (Lysaght and Altschuld, 2000). In addition, a seminar course is often communicated through one-way communication. One-way communication may make transmitted information not clear to the understanding of learners in education courses. Thus, one-way communication may be not effective communication and does not add to the knowledge base of learners. On the other hand, two-way communication is more effective in the exchange of information that increases understanding for learners (Kral, 2010). Two-way communication is more effective communication channels that can increase the clearness of complex topics. Besides, prior research has suggested that continuous audit improvement is only the minimum requirement of auditors for training, and continuing education, to provide guidance on education and the development of capabilities for audit professionals. Also, there are many factors that affect sustainable audit success which are not only in education and training (Khampichit and Ussahawanitchakit, 2011). Consequently, the continuous training and development for tax auditors may not enhance their proficiency as well.

However, based on the social cognitive theory, auditors gain knowledge from interaction between environmental factors, such as exchanging information with other auditors, meeting with people who are a specialists in the related field, and collecting knowledge from clients and any kind of media that can enhance professional audit proficiency. Auditors with higher continuous audit improvement tend to have higher audit proficiency. They are likely to achieve high audit quality and audit effectiveness. Thus, the hypotheses are proposed as follows:

Hypothesis 10a: Continuous audit improvement is positively related to audit learning capability.

Hypothesis 10b: Continuous audit improvement is positively related to audit method integration.

Hypothesis 10c: Continuous audit improvement is positively related to audit technology implementation.

Hypothesis 10d: Continuous audit improvement is positively related to audit skepticism orientation.

Hypothesis 10e: Continuous audit improvement is positively related to audit ethics focus.

Audit Experience Diversity

An auditor who does auditing must act like a professional in accounting and auditing. Professionalism must be achieved through several methods, and one way is gained by experience in auditing practices because work experience is going to improve an auditor's ability to do the audit. Audit experience is divided into two types that are client-specific audit experience and general audit experience (Popova, 2012). Client-specific audit experience results from the previous interaction between the audit and a specific client in terms of application only to the current client. General audit experience is acquired through contact across multiple clients. Moreover, audit experience consists of positive and negative experience. An auditor's knowledge, skills, and attitudes are changed if experience increases because of auditors who receive more experience. Then, they will learn to retrieve and apply the knowledge, and will learn how to perform better at related tasks.

Various research on audit experience has indicated that an auditor's knowledge and skills change as audit experience increases (Badara and Saidin, 2013; Knapp and Knapp, 2001). Audit experience can improve performance by providing the necessary knowledge and skills required to complete audit tasks. Auditors who have greater audit experience can better deal with various accounting issues and are aware of the impact of laws on audit methods that help to prepare suitable audit steps (Wang et al., 2015). Moreover, an auditor with high experience can show a code of ethics to improve judgments and represent skepticism all the time of audit operation that can help to find out errors from a transaction (Pflugrath, Bennie, and Chen, 2007; Silvija, 2014). Beyond this, an auditor’s experience enhances auditors for interpreting ambiguous standards in a

way to support audit methods and have the ability to use audit technology that will aid in operating audit tasks. Hence, audit experience will be reflected as a method and judgments of differences among auditors to signal their knowledge, skills, and other capabilities within audit work.

Furthermore, auditors are going to gain benefit from a different kind of previous audit tasks and many audit tasks, such as auditors with a positive experience about fraud of clients' firms, who will be aware of more honesty in the client; whereas there is less honesty if there are negative experiences (Popova, 2012). Therefore, audit methods and audit judgments may show a difference based on prior experience. The diversification of previous audit tasks such as industries, fraud types, unique accounting systems, particular technology implementation, and specific internal control application affect an auditor's behavior through learning and applying previous experience. Thus, audit experience diversity is an important factor to improve professional audit proficiency which is fundamental to audit effectiveness (Halim, Sutrisno, and Achsin, 2014; Musig and Ussahawanitchakit, 2011; Zarefar, Andreas, and Zarefar, 2016). Presently, audit experience diversity refers to the different kind of knowledge and skills which is the result obtained through the duration of tenure of job practice in the audit profession (Badara and Saidin, 2013). Auditors who have experience tend to perform best audit practices to achieve superior audit outcomes that would lead to audit success (Ussahawanitchakit, 2012). Based on the aforementioned, the hypotheses are proposed as follows:

Hypothesis 11a: Audit experience diversity is positively related to audit learning capability.

Hypothesis 11b: Audit experience diversity is positively related to audit method integration.

Hypothesis 11c: Audit experience diversity is positively related to audit technology implementation.

Hypothesis 11d: Audit experience diversity is positively related to audit skepticism orientation.

Hypothesis 11e: Audit experience diversity is positively related to audit ethics focus.

Technology Development Growth

Many businesses are moving to e-business and are implementing computerized accounting information systems and technology innovation. This phenomenon has given impact to the audit profession in performing information technology audits, financial report audits and tracking electronic source documents (Rosli, Yeow, and Siew, 2012). Technology is hardware and software products, information systems operations and management processes used in the production of goods, services, or the accomplishment of objectives (Janvrin, Caster, and Elder, 2010; Suryanto, 2016). Technology has two aspects: the hard and the soft aspects. Hard technology is the physical tools, equipment, and hardware required to design and build audit evidence and reports such as computer-related peripheral devices, cameras, scanners, printers, and faxes. Soft technology is the management processes, procedures, and software such as accounting programs, auditing programs, internet websites, data mining and other related items that facilitate auditors' access to information, and perform functions such as planning, testing, and quality control.

Development is a means of the shift from one state at some point in time, through to some future state. Technology development implies that a new technology will replace the old one. Indeed, the new technology usually performs better than the old one. Previous research indicates that the auditor perceives of the importance of technologies that are word-processing, electronic working papers, electronic spreadsheets, electronic search and retrieval, emails, small business accounting software, image processing, tax systems, generalized audit software, firewall hardware/software and external network configurations (Ismail and Abidin, 2009). Recently, technologies such as forensic tools, eXtensible Business Reporting Language, electronic data processing systems, analytics, and data mining are used in accounting and audit sectors (Pan and Seow, 2016). However, in the future, new ones such as

machine-learning programs, robotics programs, and cognitive computing programs will replace the old technology in the audit field (Permsirivallop, 2016). The technological advances introduce unprecedented new challenges to auditors. However, the rapid growth in technology development may be an opportunity and threat for the auditor who depended on their adapting to keep pace with the technology innovation wave.

In this study, technology development growth refers to the continuous expansion and changes in technology, both in parts used in the audit, and in parts of the preparation and presentation of financial statements of the firms (Moorthy et al., 2011). The growth and change of both accounting and auditing technology are forcing auditors to change their methods of doing things. Generally, transaction recording and reporting has been transformed from a paper-based system to an electronic information system and software such as invoices, purchase orders, billing records; and records accounting journals such as sales, inventory lists of stocks and registries that are only available in electronic format and not on paper (Elefterie and Badea, 2016; Yeghaneh, Zangiabadi, and Firozabadi, 2015). Thus, the auditor should change their methods and practices to access the client's information, and impact the way of an audit plan and operation, because it shifts the testing and gathering from documentary evidence to electronic evidence (Maria and Ariyani, 2014). In another way, the growth of audit technology is helping auditors to obtain insights from client data more and use larger volumes of audit data rather than previously support the audit (Ernst and Young, 2015). This will reduce audit time usage, the cost of an audit, audit liability risk, and improve the efficiency and effectiveness of the audit.

In addition, the rapid growth in the breadth and depth of the technology puts pressure on the auditors to develop their proficiency in order to enhance audit results; because auditors have been expected to have a higher level of technology knowledge and skills. They must audit the task of many different clients with different information systems (Ismail and Abidin, 2009). The growth in technology is likely to affect various aspects of accounting and auditing, and it increases the extent to which business risk influences the likelihood of financial misstatements; thus, auditors must develop approaches to assess business risk more carefully (Schultz, Bierstaker, and O'Donnell, 2010). Therefore, the increase of technology development makes auditors improve their own individual behaviors to gain greater excellent professional audit proficiency, and to

align with the expectations of the regulators, investors, and clients (Musig and Ussahawanitchakit, 2011). Thus, the hypotheses are proposed as follows:

Hypothesis 12a: Technology development growth is positively related to audit learning capability.

Hypothesis 12b: Technology development growth is positively related to audit method integration.

Hypothesis 12c: Technology development growth is positively related to audit technology implementation.

Hypothesis 12d: Technology development growth is positively related to audit skepticism orientation.

Hypothesis 12e: Technology development growth is positively related to audit ethics focus.

Stakeholder Pressure Intensity

In the present scandalous environment, auditors have a diversity of stakeholders, and any of these stakeholders have expectations of the audit. Stakeholders are any group of constituents or individuals who can influence or are influenced by the success of the auditor's objectives (Ussahawanitchakit, 2012). Stakeholders include shareholders, lenders, customers, managers, employees, suppliers, local communities, and the general public. Clearly, the main audit objective is to provide an independent opinion to stakeholders on the truth and fairness of the financial statements which are generated by management. However, there are other stakeholders who expect to use the audited financial information for decision-making including employees, lenders, suppliers, and governments. The financial information is verified not only for shareholders, but also for the other stakeholders as public goods (Adeyemi and Fagbemi, 2011). For example, employees expect to use the audited financial information to evaluate working conditions and stability. Lenders expect to use the audited financial information to

predict the opportunity of borrowers who repaid loans and interest. Suppliers expect to use audited financial information for seeking dependable buyers. Governments expect to use the audited financial information to evaluate and predict tax revenue. Hence, stakeholder expectations affect auditor judgments and behaviors by motivating auditors to look for evidence that support a stakeholders' preferred outcome (Hatfield, Jackson, and Vandervelde, 2011). For example, when tax auditors were pressured by managers to achieve targets and complete work on a backlog of cases, they changed their behaviors to bargaining such as eliminating insignificant audit issues to reduce taxpayers' taxes (Muhammad, 2013).

All the different expectations of stakeholders put pressure on the audit. If the auditors attempt to meet the expectations of stakeholders, it could impact the value of the audit. Stakeholders have a demand for information that is reliable and beneficial which affects decision-making and which increases the level of quality of information provided in the financial statements. Then, auditors face the expectations and the need to respond to the concerns of the stakeholder groups, making the auditors to adapt by knowledge development, ability, and increased competency in a way that enables them to arrive at the desired outcome. Also, pressure intensity is the degree of force and power used by stakeholders to demand certain actions from the auditor (Gonzalez-Benito and Gonzalez-Benito, 2010). Auditors react differently to different sets and levels of stakeholder pressure (Perez-Batres et al., 2012). Thus, high levels of stakeholder pressure enforce auditors to develop knowledge, abilities, and skills. However, the ability of auditors to arrive at preferred outcomes is limited by their ability to find apparently justifiable reasons for the outcomes and the characteristics of the company under responsibilities (Hatfield, Jackson, and Vandervelde, 2011; Musig and Ussahawanitchakit, 2011). For example, if a small business gets pressure from the stakeholders, maybe no power is able to force an auditor to serve what stakeholders preferred.

In this study, stakeholder pressure intensity refers to the degree of a stakeholder's expectations and impetus to demand certain actions from the auditors (Gonzalez-Benito and Gonzalez-Benito, 2010). Stakeholder pressure intensity is a key driver of auditor behaviors because of audit effectiveness depending on the ability to build value for stakeholders by responding to demands and expectations of users.

Hence, stakeholder pressure intensity is hypothesized to have a positive influence on each dimension of professional audit proficiency. Therefore, the illustrated relationship is hypothesized as shown below.

Hypothesis 13a: Stakeholder pressure intensity is positively related to audit learning capability.

Hypothesis 13b: Stakeholder pressure intensity is positively related to audit method integration.

Hypothesis 13c: Stakeholder pressure intensity is positively related to audit technology implementation.

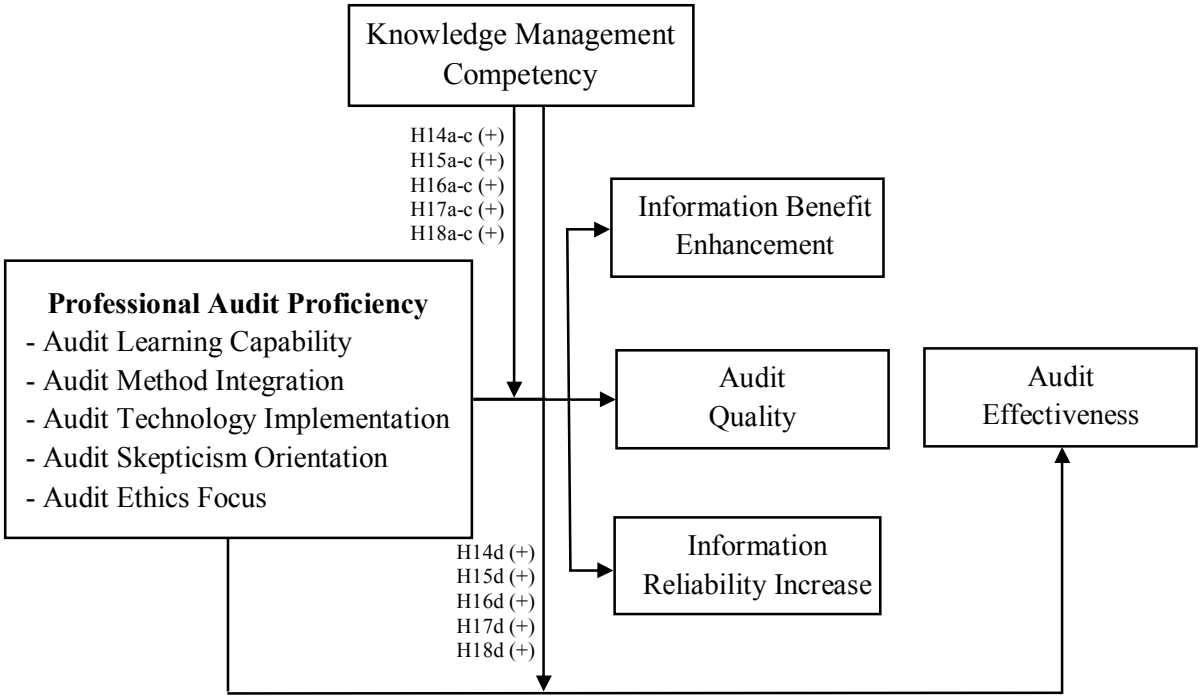
Hypothesis 13d: Stakeholder pressure intensity is positively related to audit skepticism orientation.

Hypothesis 13e: Stakeholder pressure intensity is positively related to audit ethics focus.

The Roles of Knowledge Management Competency as a Moderator

This section discusses the positive moderating effects of knowledge management competency on the relationship between professional audit proficiency and audit outcomes. The relationships of the variables are shown in Figure 5 and described as follows.

Figure 5: The Roles of Knowledge Management Competency as a Moderator



Knowledge Management Competency

Knowledge is information and skills acquired through education or experience, the sum of what is known, and the awareness gained by experience of a situation. Knowledge is separated into two dimensions of explicit knowledge and tacit knowledge (Jafari, Akhavan and Nikookar, 2013). Explicit knowledge is in the form of words and numbers, and can be easily communicated and shared in the form of hard data or general principles. Tacit knowledge is something that is not easy to observe, is highly personal and hard to formalize. Also, it is difficult to communicate or to share with others. In terms of auditing, auditors have to both explicit and tacit knowledge; and not only knowledge in auditing and accounting, but in multidisciplinary knowledge such as economics, information technology, law, computing, and others related to audit task including industry and business knowledge of their clients to gain superior audit performance (Daud, 2007).

Knowledge management is viewed as both points of view for the organization and an individual. In terms of organizational viewpoint, knowledge management represents the systematic process for creating, sharing, organizing, reusing, and

adapting tacit and/or explicit knowledge within organizations, so that it leads to improved organizational performance (Wei et al., 2015). Knowledge management is an organization's competitive advantage that is affected by the ability to create, identify, share, and apply knowledge. Therefore, the knowledge transfer process is a key factor in the success of organizations that expect to survive and grow (Rodgers, Mubako, and Hall, 2017).

An individual viewpoint focuses on facilitating knowledge-sharing among individuals, specifically from knowledgeable individuals to others. Personal knowledge management is the knowledge that a person has and how a person can organize it, concentrate it and use it to achieve goals (Martin, 2008). Knowledge management has been seen as a tool to manage individual knowledge which is the process of organizing, mobilizing, and utilizing explicit knowledge and tacit knowledge (Jain, 2010). Also, knowledge management is the process transforming of data, information, and knowledge from individuals to others (Nguyen et al., 2015). Competency is the nature of skills, know-how, abilities and individual characteristics acquired through deliberate, systematic and sustained efforts to adaptively perform a particular role and perform activities or job functions successfully (Ozdemir, Akatayu, and Eroglu, 2015). Thus, knowledge management competency is a competency that shows the deliberate and systematic transforming of the processing of data, information, and knowledge of the auditor with the aim to gain superior audit performance. In addition, knowledge management competency is focusing on knowledge processes to support audit performance. It helps auditors to be able to absorb external knowledge, force existing knowledge to create new knowledge and make it a valuable resource which is important to enhance audit performance.

In this research, knowledge management competency refers to the ability of an auditor in knowledge-sharing, technical exchange, data transfer, and brainstorming with others which allows one to learn and apply the achievement of audit objectives and the enhancement of the value of audit (Martin, 2008; Ozdemir, Akatayu, and Eroglu, 2015). Under the knowledge-based services such as those of auditors, useful knowledge can create the promotion of audit results (Mao et al., 2016). According to prior research, knowledge transfer plays a vital role in improving auditor professional skepticism, thereby enhancing the accuracy of auditor judgments in audit engagement planning

(Rodgers, Mubako, and Hall, 2017). Thus, knowledge transfer influences individuals' decisions, which is necessary to share quality ideas, and, more importantly, to transfer knowledge among the auditors. Additionally, brainstorming as a tool for knowledge transfer between auditors, emphasizes brainstorming in audit planning, especially in fraud risk assessment which uses testing of controls to gather evidence of fraud risk and which can improve the efficiency and effectiveness of audit procedures (Lee et al., 2016; Nassir, Sanusi, and Ghani, 2016). The benefits of knowledge management raise the awareness of the accounting quality and increase the quality of ideas during a brainstorming process (Abreu, David, and Segura, 2012). Therefore, the ability to manage auditor's knowledge improves audit efficiency and positively moderates the relationships between fraud risk factors and fraud risk assessments that improve audit quality (Brazel, Carpenter, and Jenkins, 2010; Carpenter, 2007). Altogether, the effective management of knowledge enhances the interaction of auditors with others; and contributes to audit quality, usefulness and reliability of audited information and audit effectiveness. Thus, knowledge management is a set of processes to generate value to drive audit performance.

However, brainstorming did not generate more ideas. The auditors did not participate in the discussion due to several reasons such as only one auditor talking at a time while other members listened. While waiting to speak, blockage production may happen in which their idea may be lost due to the same idea; or they perceive the idea to be inappropriate to the discussion. Other than production blocking, free riding or social loafing may also happen in a brainstorming session (Nassir, Sanusi, and Ghani, 2016). Thus, the sharing of ideas, information, and experiences on audit may not take place because of production blocking and social loafing.

Nonetheless, in the context of the present research, proficient auditors understand the accounting and auditing standards, internal control systems, and accounting systems. Meanwhile, knowledge management competency can improve the performance of audit even without high proficiency. Therefore, knowledge management competency and auditors' proficiency may affect the auditors' performance in the audit tasks. In terms of knowledge management competency, auditors can share ideas, information, and fraud experience related to audit tasks. Knowledge management competency, as a tool for knowledge, transfers from proficient auditors to others.

Here, this study aims to provide understanding on the interaction between knowledge management competency and auditors' proficiencies against the performance of an audit. This study anticipates that knowledge management competency will have an influence on the relationships among each component of professional audit proficiency and audit outcomes. Therefore, the hypotheses are proposed as follows:

Hypothesis 14a: Knowledge management competency positively moderates the relationship between audit learning capability and audit quality.

Hypothesis 14b: Knowledge management competency positively moderates the relationship between audit learning capability and information benefit enhancement.

Hypothesis 14c: Knowledge management competency positively moderates the relationship between audit learning capability and information reliability increase.

Hypothesis 14d: Knowledge management competency positively moderates the relationship between audit learning capability and audit effectiveness.

Hypothesis 15a: Knowledge management competency positively moderates the relationship between audit method integration and audit quality.

Hypothesis 15b: Knowledge management competency positively moderates the relationship between audit method integration and information benefit enhancement.

Hypothesis 15c: Knowledge management competency positively moderates the relationship between audit method integration and information reliability increase.

Hypothesis 15d: Knowledge management competency positively moderates the relationship between audit method integration and audit effectiveness.

Hypothesis 16a: Knowledge management competency positively moderates the relationship between audit technology implementation and audit quality.

Hypothesis 16b: Knowledge management competency positively moderates the relationship between audit technology implementation and information benefit enhancement.

Hypothesis 16c: Knowledge management competency positively moderates the relationship between audit technology implementation and information reliability increase.

Hypothesis 16d: Knowledge management competency positively moderates the relationship between audit technology implementation and audit effectiveness.

Hypothesis 17a: Knowledge management competency positively moderates the relationship between audit skepticism orientation and audit quality.

Hypothesis 17b: Knowledge management competency positively moderates the relationship between audit skepticism orientation and information benefit enhancement.

Hypothesis 17c: Knowledge management competency positively moderates the relationship between audit skepticism orientation and information reliability increase.

Hypothesis 17d: Knowledge management competency positively moderates the relationship between audit skepticism orientation and audit effectiveness.

Hypothesis 18a: Knowledge management competency positively moderates the relationship between audit ethics focus and audit quality.

Hypothesis 18b: Knowledge management competency positively moderates the relationship between audit ethics focus and information benefit enhancement.

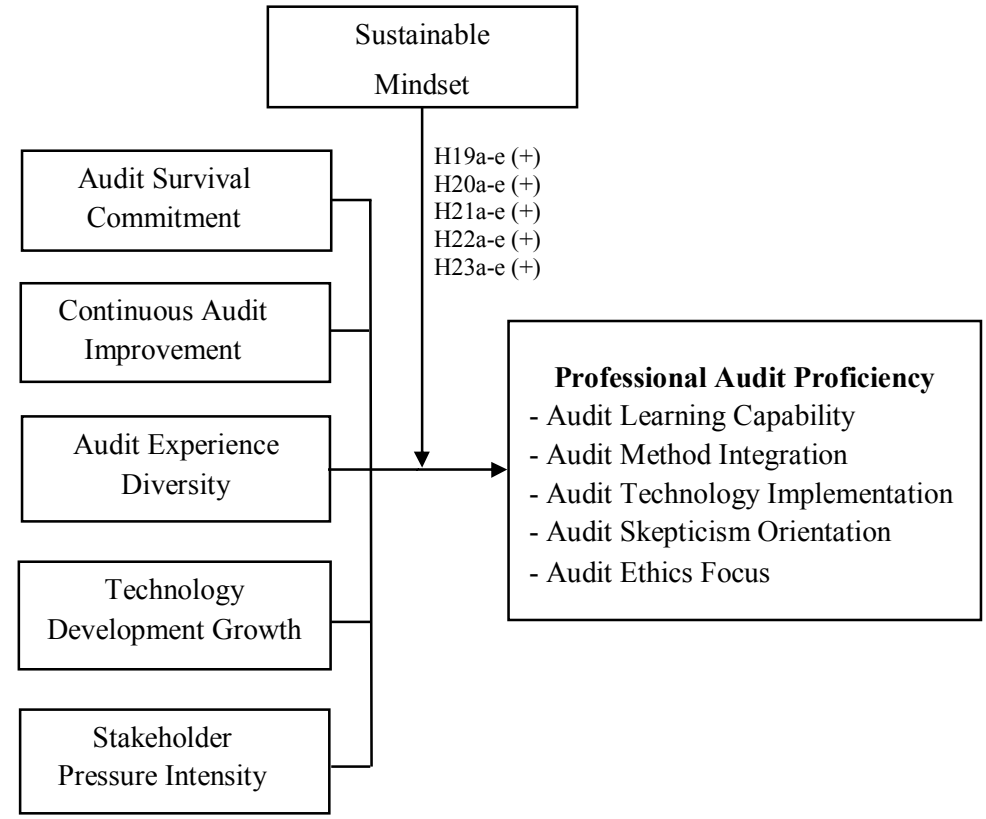
Hypothesis 18c: Knowledge management competency positively moderates the relationship between audit ethics focus and information reliability increase.

Hypothesis 18d: Knowledge management competency positively moderates the relationship between audit ethics focus and audit effectiveness.

The Roles of Sustainable Mindset as a Moderator

This section discusses the positive moderating effects of sustainable mindset on the relationship between antecedents and professional audit proficiency. The relationships of the variables are shown in Figure 6 and are described as follows.

Figure 6: The Roles of Sustainable Mindset as a Moderator



Sustainable Mindset

Mindset is the set of judgment criteria and cognitive methods and procedures that build a requirement or readiness to respond in a certain manner (Griffith et al., 2015). Mindset guides individuals in the interpretation and planning of their actions (Torelli and Kaikati, 2009). Mindset can increase individual confidence, determination, and commitment to the achievement of a task. Additionally, sustainability denotes the ability to continue over a long time. Therefore, sustainable mindset refers to the auditor's respect for the profession, awareness of the importance of the profession, and belief of the persistence of the auditing profession (Griffith et al., 2015; Torelli and Kaikati, 2009). When the auditors are confident about the sustainability of the profession, awareness of the profession that is beneficial to society, and trust in the profession that will exist for a long time; then sustainable mindset encourages an auditor to improve their professional audit proficiency to provide outcomes for the auditor's client. In the context of this study, the sustainable mindset is necessary because it drives auditor behavior to adopt knowledge and skills when they perform audit duties. Given that auditor appreciation about the auditing profession is beneficial and significant to society, and its responsibility to the public is a part of the social contract that makes the profession able to continue over a period, the auditor pays attention to promoting their ability to provide excellent outcomes for their client.

Prior research has shown that an auditor's mindset plays a vital role to support auditors' abilities. A deliberative mindset intervention improves auditors' abilities to identify unreasonable estimates, incorporate into analyses conflicting data from various parts of the audit, and improving the ability of critical thinking about the evidence (Griffith et al., 2015). In addition, a deliberative mindset intervention increased time spent on the audit task and perceived difficulty of the audit task (Rasso, 2013). Also, auditors in a fraud specialist mindset assessed fraud risk significantly higher than auditors in the audit mindset in both high and low fraud risk conditions (Lawrence, 2010). It implies that the difference in mindset can lead auditors to make different judgments and decisions.

As aforementioned, auditors with a sustainable mindset are likely to enhance professional audit proficiency because a sustainable mindset enhances auditors' behaviors to achieve in their duties. In this research, sustainable mindset intervenes

between professional audit proficiency and antecedents consisting of audit survival commitment, audit experiences diversity, continuous audit improvement, technology development growth, and stakeholder pressure. Sustainable mindset intervention is likely to support a relationship between professional audit proficiency and antecedents. Thus, the hypotheses are proposed as follows:

Hypothesis 19a: Sustainable mindset positively moderates the relationship between audit survival commitment and audit learning capability.

Hypothesis 19b: Sustainable mindset positively moderates the relationship between audit survival commitment and audit method integration.

Hypothesis 19c: Sustainable mindset positively moderates the relationship between audit survival commitment and audit technology implementation.

Hypothesis 19d: Sustainable mindset positively moderates the relationship between audit survival commitment and audit skepticism orientation.

Hypothesis 19e: Sustainable mindset positively moderates the relationship between audit survival commitment and audit ethics focus.

Hypothesis 20a: Sustainable mindset positively moderates the relationship between continuous audit improvement and audit learning capability.

Hypothesis 20b: Sustainable mindset positively moderates the relationship between continuous audit improvement and audit method integration.

Hypothesis 20c: Sustainable mindset positively moderates the relationship between continuous audit improvement and audit technology implementation.

Hypothesis 20d: Sustainable mindset positively moderates the relationship between continuous audit improvement and audit skepticism orientation.

Hypothesis 20e: Sustainable mindset positively moderates the relationship between continuous audit improvement and audit ethics focus.

Hypothesis 21a: Sustainable mindset positively moderates the relationship between audit experience diversity and audit learning capability.

Hypothesis 21b: Sustainable mindset positively moderates the relationship between audit experience diversity and audit method integration.

Hypothesis 21c: Sustainable mindset positively moderates the relationship between audit experience diversity and audit technology implementation.

Hypothesis 21d: Sustainable mindset positively moderates the relationship between audit experience diversity and audit skepticism orientation.

Hypothesis 21e: Sustainable mindset positively moderates the relationship between audit experience diversity and audit ethics focus.

Hypothesis 22a: Sustainable mindset positively moderates the relationship between technology development growth and audit learning capability.

Hypothesis 22b: Sustainable mindset positively moderates the relationship between technology development growth and audit method integration.

Hypothesis 22c: Sustainable mindset positively moderates the relationship between technology development growth and audit technology implementation.

Hypothesis 22d: Sustainable mindset positively moderates the relationship between technology development growth and audit skepticism orientation.

Hypothesis 22e: Sustainable mindset positively moderates the relationship between technology development growth and audit ethics focus.

Hypothesis 23a: Sustainable mindset positively moderates the relationship between stakeholder pressure intensity and audit learning capability.

Hypothesis 23b: Sustainable mindset positively moderates the relationship between stakeholder pressure intensity and audit method integration.

Hypothesis 23c: Sustainable mindset positively moderates the relationship between stakeholder pressure intensity and audit technology implementation.

Hypothesis 23d: Sustainable mindset positively moderates the relationship between stakeholder pressure intensity and audit skepticism orientation.

Hypothesis 23e: Sustainable mindset positively moderates the relationship between stakeholder pressure intensity and audit ethics focus.

Summary

This chapter has detailed the conceptual model of the effect of professional audit proficiency on audit effectiveness based on the capability theory and the social cognitive theory which are applied to explain the auditor's diverse and professional audit proficiency performs audit tasks and provides financial information to serve the public interest. Moreover, the dimensions of professional audit proficiency are developed from the principle of IAESB in five dimensions, namely, audit learning capability, audit technology implementation, audit method integration, audit skepticism orientation, and audit ethics focus. Furthermore, audit outcomes consist of audit quality, information benefit enhancement, information reliability increase, and audit effectiveness. Knowledge management competency is purposed to be the moderator of professional audit proficiency and audit outcomes.

Additionally, the five antecedents are tested for a positive relationship with professional audit proficiency, via audit survival commitment, audit experience diversity, continuous audit improvement, technology development growth, and stakeholder pressure. Besides, sustainable mindset is purposed to be the moderator of antecedents and professional audit proficiency. This chapter has proposed a set of twenty-three testable hypotheses which are summarized in Table 3.

Table 3: The Summary of Hypothesized Relationships

Hypothesis	Description of Hypothesized Relationships
H1a	Audit learning capability is positively related to audit quality
H1b	Audit learning capability is positively related to information benefit enhancement
H1c	Audit learning capability is positively related to information reliability increase
H1d	Audit learning capability is positively related to audit effectiveness
H2a	Audit method integration is positively related to audit quality
H2b	Audit method integration is positively related to information benefit enhancement
H2c	Audit method integration is positively related to information reliability increase
H2d	Audit method integration is positively related to audit effectiveness
H3a	Audit technology implementation is positively related to audit quality
H3b	Audit technology implementation is positively related to information benefit enhancement
H3c	Audit technology implementation is positively related to information reliability increase
H3d	Audit technology implementation is positively related to audit effectiveness
H4a	Audit skepticism orientation is positively related to audit quality
H4b	Audit skepticism orientation is positively related to information benefit enhancement
H4c	Audit skepticism orientation is positively related to information reliability increase
H4d	Audit skepticism orientation is positively related to audit effectiveness
H5a	Audit ethics focus is positively related to audit quality
H5b	Audit ethics focus is positively related to information benefit enhancement

Table 3: The Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships
H5c	Audit ethics focus is positively related to information reliability increase
H5d	Audit ethics focus is positively related to audit effectiveness
H6a	Audit quality is positively related to information benefit enhancement
H6b	Audit quality is positively related to information reliability increase
H6c	Audit quality is positively related to audit effectiveness
H7	Information benefit enhancement is positively related to audit effectiveness
H8	Information reliability increase is positively related to audit effectiveness
H9a	Audit survival commitment is positively related to audit learning capability
H9b	Audit survival commitment is positively related to audit method integration
H9c	Audit survival commitment is positively related to audit technology implementation
H9d	Audit survival commitment is positively related to audit skepticism orientation
H9e	Audit survival commitment is positively related to audit ethics focus
H10a	Continuous audit improvement is positively related to audit learning capability
H10b	Continuous audit improvement is positively related to audit method integration
H10c	Continuous audit improvement is positively related to audit technology implementation
H10d	Continuous audit improvement is positively related to audit skepticism orientation
H10e	Continuous audit improvement is positively related to audit ethics focus

Table 3: The Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships
H11a	Audit experience diversity is positively related to audit learning capability
H11b	Audit experience diversity is positively related to audit method integration
H11c	Audit experience diversity is positively related to audit technology implementation
H11d	Audit experience diversity is positively related to audit skepticism orientation
H11e	Audit experience diversity is positively related to audit ethics focus
H12a	Technology development growth is positively related to audit learning capability
H12b	Technology development growth is positively related to audit method integration
H12c	Technology development growth is positively related to audit technology implementation
H12d	Technology development growth is positively related to audit skepticism orientation
H12e	Technology development growth is positively related to audit ethics focus
H13a	Stakeholder pressure intensity is positively related to audit learning capability
H13b	Stakeholder pressure intensity is positively related to audit method integration
H13c	Stakeholder pressure intensity is positively related to audit technology implementation
H13d	Stakeholder pressure intensity is positively related to audit skepticism orientation
H13e	Stakeholder pressure intensity is positively related to audit ethics focus

Table 3: The Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships
H14a	Knowledge management competency positively moderates the relationship between audit learning capability and audit quality
H14b	Knowledge management competency positively moderates the relationship between audit learning capability and information benefit enhancement
H14c	Knowledge management competency positively moderates the relationship between audit learning capability and information reliability increase
H14d	Knowledge management competency positively moderates the relationship between audit learning capability and audit effectiveness
H15a	Knowledge management competency positively moderates the relationship between audit method integration and audit quality
H15b	Knowledge management competency positively moderates the relationship between audit method integration and information benefit enhancement
H15c	Knowledge management competency positively moderates the relationship between audit method integration and information reliability increase
H15d	Knowledge management competency positively moderates the relationship between audit method integration and audit effectiveness
H16a	Knowledge management competency positively moderates the relationship between audit technology implementation and audit quality
H16b	Knowledge management competency positively moderates the relationship between audit technology implementation and information benefit enhancement
H16c	Knowledge management competency positively moderates the relationship between audit technology implementation and information reliability increase

Table 3: The Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships
H16d	Knowledge management competency positively moderates the relationship between audit technology implementation and audit effectiveness
H17a	Knowledge management competency positively moderates the relationship between audit skepticism orientation and audit quality
H17b	Knowledge management competency positively moderates the relationship between audit skepticism orientation and information benefit enhancement
H17c	Knowledge management competency positively moderates the relationship between audit skepticism orientation and information reliability increase
H17d	Knowledge management competency positively moderates the relationship between audit skepticism orientation and audit effectiveness
H18a	Knowledge management competency positively moderates the relationship between audit ethics focus and audit quality
H18b	Knowledge management competency positively moderates the relationship between audit ethics focus and information benefit enhancement
H18c	Knowledge management competency positively moderates the relationship between audit ethics focus and information reliability increase
H18d	Knowledge management competency positively moderates the relationship between audit ethics focus and audit effectiveness
H19a	Sustainable mindset positively moderates the relationship between audit survival commitment and audit learning capability
H19b	Sustainable mindset positively moderates the relationship between audit survival commitment and audit method integration
H19c	Sustainable mindset positively moderates the relationship between audit survival commitment and audit technology implementation

Table 3: The Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships
H19d	Sustainable mindset positively moderates the relationship between audit survival commitment and audit skepticism orientation
H19e	Sustainable mindset positively moderates the relationship between audit survival commitment and audit ethics focus
H20a	Sustainable mindset positively moderates the relationship between continuous audit improvement and audit learning capability
H20b	Sustainable mindset positively moderates the relationship between continuous audit improvement and audit method integration
H20c	Sustainable mindset positively moderates the relationship between continuous audit improvement and audit technology implementation
H20d	Sustainable mindset positively moderates the relationship between continuous audit improvement and audit skepticism orientation
H20e	Sustainable mindset positively moderates the relationship between continuous audit improvement and audit ethics focus
H21a	Sustainable mindset positively moderates the relationship between audit experience diversity and audit learning capability
H21b	Sustainable mindset positively moderates the relationship between audit experience diversity and audit method integration
H21c	Sustainable mindset positively moderates the relationship between audit experience diversity and audit technology implementation
H21d	Sustainable mindset positively moderates the relationship between audit experience diversity and audit skepticism orientation
H21e	Sustainable mindset positively moderates the relationship between audit experience diversity and audit ethics focus
H22a	Sustainable mindset positively moderates the relationship between technology development growth and audit learning capability
H22b	Sustainable mindset positively moderates the relationship between technology development growth and audit method integration

Table 3: The Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships
H22c	Sustainable mindset positively moderates the relationship between technology development growth and audit technology implementation
H22d	Sustainable mindset positively moderates the relationship between technology development growth and audit skepticism orientation
H22e	Sustainable mindset positively moderates the relationship between technology development growth and audit ethics focus
H23a	Sustainable mindset positively moderates the relationship between stakeholder pressure intensity and audit learning capability
H23b	Sustainable mindset positively moderates the relationship between stakeholder pressure intensity and audit method integration
H23c	Sustainable mindset positively moderates the relationship between stakeholder pressure intensity and audit technology implementation
H23d	Sustainable mindset positively moderates the relationship between stakeholder pressure intensity and audit skepticism orientation
H23e	Sustainable mindset positively moderates the relationship between stakeholder pressure intensity and audit ethics focus

CHAPTER III

RESEARCH METHODS

This chapter describes the research methods that are divided into five main parts comprising the sample selection and data collection procedures, variables measurements, instrument verifications, analytical statistics, and a summary. First, it details sample and data collection procedures including sample selection, data collection, and the test of non-response bias which are detailed. Second, it discusses the measurement development that consists of the variable definition and measurement scales of all variables in the conceptual model. Third, it presents the instrument verifications including a test of validity and reliability. Fourth, analytical statistics describe the type of statistics used to analyze and test the hypotheses and analytic equations. Finally, they show the table of the summary of definitions and operational variables.

Sample Selection and Data Collection Procedure

In Thailand, the external audit profession is divided into two groups comprised of certified public accountants (CPAs) and tax auditors. Tax auditors have functions and duties to investigate partnership enterprises' financial statements (Revenue Department, 2002). The vital role is to serve the public need with quality of service. They must perform audit tasks upholding the fundamental principles of professional conduct. Tax auditors perform this to ensure that small firms' financial statements rely on accounting regulations such as generally accepted accounting principles, industry-specific standards, and tax legislation. In a Thailand context, tax auditors play a major role to encourage that a small firm has properly prepared the financial statements which help it to succeed in business and leads to effective tax collection for a tax authority. Especially, taxes have been acknowledged as a major source of public revenue. Therefore, tax auditors are at the heart of the small firm in terms of improving the quality of information, keeping clients informed about regulations related to their business, and providing suggestions to improve their business. In another way, tax auditors are at the heart of the tax authority in terms of providing a check on tax

compliance of taxpayers and increasing effective tax collection. Therefore, tax auditors are one of the important professionals in auditing, who are a key sample group of this research.

A tax auditor performs to ensure that firms preparing the financial statements are in accordance with related accounting standards. They perform for encouraging partnership enterprises to declare the true taxable income and pay the right amounts in accordance with tax laws and regulations (Drogalas et al., 2015). Especially, tax auditors are also examining the degree to which the partnership enterprises have properly prepared the financial statements according to the existing tax legislation. Tax auditors must examine and check the accounting records and documents to determine and make adjustments to the taxable income figures. Also, auditing tax compliance is made difficult because the tax law can be ambiguous. Some tax rules are straightforward, such as the computation of capital cost allowance. Others can involve considerable judgment, such as, how to determine fair market value for transactions between related parties when no external market exists. Hence, professional audit proficiency was an important factor in the complex business environment and ambiguous regulations. Especially, this climate of business environment and regulations is the pressure tax auditors have to perform by professional audit proficiencies. Consequently, in performing the tax audit, the tax auditor should be using or applying professional audit proficiency to perform audit duties.

Besides, external accountants are the primary source of advice and prepare financial statements for partnership enterprises (Nawaz, 2012; Ojala et al., 2014). External accountants can create information asymmetry between an external accountant, owner-manager, and other stakeholders. Firms should reduce the information difference between stakeholders made through audit services that are carried out by a proficient person (Robu and Robu, 2015). Consequently, the demand for auditing of assurance increases and the audit quality and credibility of financial statements have more value to stakeholders (Niskanen, karjalainen, Niskanen, 2010). Those reasons make tax auditors' proficiencies to perform audits duties vital as well.

Population and Sample

The population of this research is tax auditors in Thailand. The database of the list of tax auditors in Thailand is drawn from the Revenue Department, Ministry of Finance (www.rd.go.th) as of May 1, 2017. Currently, the database shows 1,510 signed tax auditors for the fiscal year ended December 31, 2016. A suitable sample size under the 95% confidentiality rule is used to calculate an appropriate sample size, which are 307 participants (Krejcie and Morgan, 1970). The required sample size is determined by the formula as the following:

$$S = [\chi^2 NP(1-P)] / [d^2(N-1) + [\chi^2 P(1-P)]$$

$$S = \frac{3.841(1{,}510)(0.5)(1-0.50)}{(0.05)^2(1{,}510-1)+3.841(0.50)(1-0.50)}$$

$$S = 307$$

Where: S = required sample size

χ^2 = the table value of chi-square for one degree of freedom at the desired confidence level (3.841)

N = the population size

P = the population proportion (assumed to be 0.50 since this would provide the maximum sample size)

d = the degree of accuracy expressed as a proportion (0.05)

However, prior survey research suggests that without a follow-up process, a 20% response rate from the mail-survey is considered sufficient (Aaker, Kumar and Day, 2001). The maximum possibility of a response rate is 100% = (307x100)/ 20 = 1,535 participants. Hence, this research determines that 1,535 participants are a sampling frame. Nevertheless, this number surpasses the total population. Thus, this research finally uses 1,510 tax auditors as a sample for data collection.

Data Collection Procedures

The data were collected by the questionnaire. In this research, the questionnaire has been directly distributed to the tax auditors whose enterprises signed for the fiscal year ending December 31, 2016. The database of tax auditors in Thailand is the Revenue Department, Ministry of Finance, online database. The mail questionnaires included a postage-paid return envelope. Further, all questionnaires included a cover letter explaining the purpose of the study and assuring anonymity. Researchers reserved the returned questionnaires in a secure place to ensure confidentiality. In the first stage for collecting data, the original 1,510 questionnaires were sent to the tax auditors. In the first four weeks, there were 164 questionnaires returned. Four weeks after the initial mailing, to increase the response rate, an electronic-mail for follow-up was sent to tax auditors' electronic-mail to predicate a thank you and stimulate them in completing the questionnaire. Nine weeks after the initial mailing, there were 297 questionnaires returned. After that, the returned questionnaires were prepared for analyzing the data and testing these hypotheses. As for the results, Table 4 shows the details of the questionnaire mailing in that originally 1,510 were mailed, but 42 surveys were undeliverable because tax auditors had moved to unknown locations. Hence, finally the valid mailing was 1,468 surveys. Altogether, the returned mail contained 297 surveys, from which 296 responses were usable after one was deducted due to an incomplete survey. The effective response rate was approximately 20.16%.

Table 4: Details of Questionnaire Mailing

Details	**Numbers**
Questionnaire Mailed	1,510
Undelivered questionnaires	42
Successful questionnaires mailed	1,468
Received questionnaires	297
Incomplete questionnaires	1
Usable questionnaires	296
Response rate (296/1,468)*100	**20.16%**

Test of Non-Response Bias

A non-response bias arises when the observable characteristics of persons are not responding to the questionnaire, and are significantly different from those individuals who responded (Whitehead, Groothuis, and Blomquist, 1993). Since a comparison between respondents and non-respondents is not possible; thus, the extrapolation method was used. The extrapolation methods are based on the assumption that respondents who are answering later are expected to be similar to non-respondents (Armstrong and Overton, 1977). This research tested non-response bias by comparing characteristics of respondents between two groups. When questionnaires were received, the researchers put them in order, then split them into two equal groups, and investigated a t-test comparison using demography information consisting of the length of audit tenure, the period of the tax auditor certificate holder, average monthly income, and the number of asserted financial statements. Certainly, if there are no significant differences between the first group and the second group of respondents, then there is no nonresponse bias (Pérez-López and Alegre, 2012).

According to Appendix B, the results of non-response bias testing shows in Table 1A. The first group is 148 respondents and the second group is 148 respondents. Data from the two groups were used to compare the demography information composed of the length of audit tenure ($t = 0.274$, $p > 0.05$), the period of the tax auditor certificate holder ($t = -0.678$, $p > 0.05$), average monthly income ($t = -0.734$, $p > 0.05$), and the number of asserted financial statements ($t = 0.212$ $p > 0.05$). The result shows that there is no statistically significant difference between first and second respondents, rejecting a non-response bias between respondents and non-respondents regarding demographics. As a result, there is no non-response bias in this study.

Measurements

The measure development procedures involve developing multiple items for each construct in the proposed model. The following sections describe each of the variable measures that are dependent, independent, moderating, and control variables. All items are anchored on a five-point scale ranging from 1 to 5, where 1 represents “strongly disagree” and 5 represents “strongly agree.”

Dependent Variable

Audit effectiveness is measured by the degree to which one has established objectives that are achieved, retaining existing customers, increasing new customers, and trusting those who are involved in the audit task. An auditor practices the audit like a professional. This construct is developed as a new four-item scale from the definition and literature.

Independent Variables

This research consists of two independent variables: professional audit proficiency and the antecedents including audit survival commitment, continuous audit improvement, audit experience diversity, technology development growth, and stakeholder pressure intensity. However, the first variable is the main construct of this research. Professional audit proficiency includes five dimensions, namely, audit learning capability, audit method integration, audit technology implementation, audit skepticism orientation, and audit ethics focus.

Audit learning capability is measured by the ability of an auditor to gain knowledge by review, analysis, synthesis, interpretation from prior work, events in the past, and audit issues which allow one to carry out duties carefully and deliberately. This construct is developed as a new four-item scale from the definition and literature.

Audit method integration is measured by the ability of an auditor to perform by combining audit techniques, audit steps linkage, and coordination with a different source of information. This construct is developed as a new four-item scale from the definition and literature.

Audit technology implementation is measured by the ability of an auditor to perform by using a computer, information technology, and a database in the audit activities which allows one to check the accuracy of electronic records. This construct is developed as a new four-item scale from the definition and literature.

Audit skepticism orientation is measured by the ability of an auditor to perform by searching for information and knowledge, being alert to risk indicators, questioning regarding the adequacy of audit evidence, carefully making decisions, and carefully reviewing audit evidence. This construct is developed from Laohamethanee, Ussahawanitchakit, and Boonlua (2013), and is measured using a five-item scale.

Audit ethics focus is measured by the ability of an auditor to perform by honesty in profession; not allowing the influence of others to override professionalism; maintaining knowledge and skill at the level required to ensure that a client receives professional service; and respecting the confidentiality of data acquired as a result of the profession. Thus, the measure is an adapted scale from Khampichit and Ussahawanitchakit (2011) which is including a five-item scale.

Mediating Variables

Audit quality is measured by the degree of discovering and reporting the unusual client's financial statements, including conveying uncertain situations and critical audit matters to users. This construct is developed from Musig and Ussahawanitchakit (2011), and is measured using a four-item scale.

Information benefit enhancement is measured by the potency in presenting information in the audit report that meets the needs of users for decision-making; conveying incremental information of warning signs, estimating events, and other critical issues. This construct is developed as a new four-item scale from the definition and literature.

Information reliability increase is measured by the potency of presenting information in the audit report that is actual by using a suitable audit process; an evidence-based audit report; and reflection of the real picture of events to assure that the financial statements are unbiased, and free from misstatements. This construct is developed as a new four-item scale from the definition and literature.

Antecedents Variables

Audit survival commitment is measured by the degree that auditors expend effort to build value for stakeholders, a willingness to work hard to achieve their objectives, spending more time on developing knowledge and skills, and avoiding the use of dysfunctional audit behaviors. This construct is developed as a new four-item scale from the definition and literature.

Continuous audit improvement is measured by the degree of an auditor's participation in education and training in accounting and auditing programs, new issues of interpretation, and communication or interaction with the external environments such

as clients and others. This construct is developed from Khampichit and Ussahawanitchakit (2011) which includes a four-item scale.

Audit experience diversity is measured by the degree to which auditors analyze and adapt the previous faulty knowledge, accomplishment from events in the past, and which crystallize into operational knowledge and skills. This construct is developed from Musig and Ussahawanitchakit (2011), and is measured using a four-item scale.

Technology development growth is measured by the perceptions of an auditor regarding the expansion and change of technology within accounting and auditing that facilitate audit operations and processes. This construct is developed from Musig and Ussahawanitchakit (2011), and is measured using a four-item scale.

Stakeholder pressure intensity is measured by the perception of an auditor toward the level of requesting the information on the audit's activity, the level of competing with rivals, and the level of enforcing accounting and auditing standards. This construct is developed as a new four-item scale from the definition and literature.

Moderating Variables

Knowledge management competency is measured by the degree to which an auditor engages in knowledge-sharing, problem-solving techniques exchange, data transfer regarding critical audit issues, and brainstorming with others. This construct is developed as a new four-item scale from the definition and literature.

Sustainable mindset is measured by the degree to which an auditor is proud of the prestige of the audit profession, having an awareness of the importance of the profession, and having a belief in the persistence of the auditing profession. This construct is developed as a new four-item scale from the definition and literature.

Control Variables

Age has affected the audit judgment performance of auditors (Lee et al., 2016). Especially, older auditors are more likely to receive enforcement actions or were punished for unqualified audit service by regulators than the younger; therefore, young auditors tend to provide higher quality audits (Ye, Cheng, and Gao, 2014). Moreover, younger auditors have better learning skills and energy than older auditors, can adapt to changing standards, and are busy in the audit work. Therefore, the younger auditors are

more welcomed by audit clients (Liu, 2017). However, the older people tend to be more mature and do not like risks; the prior research found that the risk tendency decreases linearly with age, and those older auditors have a higher sensitivity to economic risk. Therefore, during the actual audit process, older auditors were more cautious than younger auditors (Paulsen et al., 2012). Nevertheless, this research provides that age has an impact on professional audit proficiency and audit outcomes. In this research, age is dichotomous; whereby when it is less than or equal to 40, it is coded as 1, and older than 40 is coded as 0.

Professional certification helps a person become exceptionally good in the marketplace, and it signals to employers that a person has that which is necessarily needed to perform a specific job (Coe and Delaney, 2008). Previous studies show that professional certification holders possess better work attraction than others with the same background knowledge but who do not hold the certificate; moreover, professional certification helps to build skills, generate knowledge and lead to increased earning potential (Dandago and Subhi, 2013). Thus, the diversity of certification is related to knowledge, skills, and the perceived value of an individual. The CPA certification provides a legal privilege associated with the ability to provide an audit opinion on firms' and enterprises' financial statements presented. Also, CPA certification provides auditors with knowledge capabilities and confidence in the assurance work which is a higher perception of reasonable assurance in the audit work. Conversely, there are no differences in the perceptions of the effectiveness of the audit risk model by different CPA certifications (Law, 2008). Additionally, tax auditor certification provides a legal privilege associated with the ability to provide an audit opinion on an enterprise's financial statements presented. Hence, this research provides that a tax auditor who has both CPA certification and tax auditor certification give a better audit, resulting in an auditor who has only a tax auditor certification. In this research, professional certification is dichotomous whereby both CPAs and tax auditor professional certification holders possess a code as 1 and the other is coded as 0.

Methods

Research methods of this research are composed of two phases. The first one is instrumental verification that concerns the validity and reliability of the questionnaire. The second one is checking the statistical assumptions and tests of the hypotheses. The statistical assumption test is based on the fundamental assumption of regression analysis which involves testing the linearity of the phenomenon measured, the constraint variance of the error terms, the normality of the distributional error term, and multicollinearity.

Validity and Reliability

The instruments used to measure the quality of the data in this research are validity and reliability. Validity and reliability are used to determine the level of consistency and accuracy of the gathered questionnaire survey results. Most of the constructs in the conceptual model are developed from new scales. Therefore a pre-test method is appropriate to conduct to assert the validity and reliability of the questionnaire. In this research, the first thirty tax auditors are chosen for testing validity and reliability.

Validity reflects the accuracy of the measurement that evinces the concept of consideration (Hair et al., 2010). This research examines the content validity and construct validity of the questionnaire for verifying that the research instrument is accurate and valid.

Firstly, content validity is a measure of the degree to which data was collected using a particular instrument representing a specific domain or content of a particular concept. Based on the relevant theory and the literature review, each of the items in the questionnaire was subjectively assessed by two academic experts in the field of study to ensure that the questionnaires used contained appropriate wording, and all constructs were sufficient to cover the contents of the variables (Eshitemi and Omwenga, 2016).

Secondly, construct validity refers to a set of measured items that reflect the latent theoretical constructs that those items are designed to measure (Hair et al., 2010). Here, factor analysis is used to examine the construct validity of the data in the questionnaire, the size of the factor loading must be greater than the 0.40 cut-off, and they are statistically significant (Nunnally and Berstein, 1994). Table 5 shows the

results of validity testing; the finding shows that the factor loadings of each construct are greater than 0.40, ranging from 0.562 to 0.955. The lowest factor loading is in audit learning capability, and the highest factor loading is on audit effectiveness. Thus, the construct validity of this study was tapped by items in the measure as theorized.

Table 5: Results of Validity Testing

Variables	N	Factor Loadings
Audit Learning Capability (ALC)	30	0.562 – 0.902
Audit Method Integration (AMI)	30	0.830 – 0.915
Audit Technology Implementation (ATI)	30	0.684 – 0.931
Audit Skepticism Orientation (ASO)	30	0.793 – 0.904
Audit Ethics Focus (AEF)	30	0.729 – 0.953
Audit Quality (AUQ)	30	0.846 – 0.917
Information Benefit Enhancement (IBE)	30	0.808 – 0.923
Information Reliability Increase (IRI)	30	0.806 – 0.929
Audit Effectiveness (AUE)	30	0.893 – 0.955
Audit Survival Commitment (ASC)	30	0.802 – 0.916
Continuous Audit Improvement (CAI)	30	0.785 – 0.900
Audit Experience Diversity (AED)	30	0.874 – 0.925
Technology Development Growth (TDG)	30	0.773 – 0.926
Stakeholder Pressure Intensity (SPI)	30	0.858 – 0.934
Sustainable Mindset (SUM)	30	0.756 – 0.930
Knowledge Management Competency (KMC)	30	0.830 – 0.872

Reliability refers to the consistency of measurement and frequently assesses using the test-retest reliability method (Eshitemi and Omwenga, 2016). Reliability is increased by including many similar items on a measure. The reliability is a measurement of the stability and consistency of the respondent in answering items concerning constructs that are a dimension of a variable and formed in a questionnaire (Susanty et al., 2015). The reliability testing in this research used the item-total correlation and Cronbach's alpha to test the reliability of the data.

Table 6: Results of Reliability Testing

Variables	N	Item total correlation	Cronbach's alpha
Audit Learning Capability (ALC)	30	0.392 - 0.787	0.837
Audit Method Integration (AMI)	30	0.720 – 0.848	0.908
Audit Technology Implementation (ATI)	30	0.526 – 0.855	0.875
Audit Skepticism Orientation (ASO)	30	0.696 – 0.830	0.908
Audit Ethics Focus (AEF)	30	0.615 – 0.917	0.924
Audit Quality (AUQ)	30	0.732 – 0.842	0.908
Information Benefit Enhancement (IBE)	30	0.672 – 0.855	0.897
Information Reliability Increase (IRI)	30	0.682 – 0.853	0.907
Audit Effectiveness (AUE)	30	0.813 – 0.914	0.942
Audit Survival Commitment (ASC)	30	0.654 – 0.834	0.870
Continuous Audit Improvement (CAI)	30	0.637 – 0.804	0.866
Audit Experience Diversity (AED)	30	0.778 – 0.858	0.917
Technology Development Growth (TDG)	30	0.627 – 0.852	0.881
Stakeholder Pressure Intensity (SPI)	30	0.747 – 0.871	0.901
Sustainable Mindset (SUM)	30	0.702 – 0.748	0.901
Knowledge Management Competency (KMC)	30	0.617 – 0.841	0.867

Firstly, the item-total correlation is the correlation between each item score and the total item score from the questionnaire. In a reliable scale, all items should correlate with the total; so, each item score should exceed 0.3 because it means each item does correlate very well with the scale overall (Field, 2009). For present research, all constructs have item-total correlations that are ranking above 0.3, which is encouraging, in that the item reliability is acceptable (shown as Table 6).

Secondly, the Cronbach's alpha reliability coefficient normally ranges between 0 and 1. The closer the coefficient is to 1, the greater the internal consistency of the items in the scale. In this research, if the alpha value is greater than 0.70, then it is reliable. If it is less than 0.70, then it is not reliable (Hair et al., 2010). Table 5 shows the results of reliability testing. The Cronbach's alpha coefficients for all variables are

greater than 0.70, ranging from 0.837 to 0.942. The results indicate that all constructs have internal consistency reliability, and the reliability of all variables is accepted.

Statistical Techniques

Before conducting hypothesis testing, all of the raw data were checked, encoded, and recorded in a data file. Then, the fundamental assumption of regression analysis, such as the normality, linearity, homoscedasticity, and multicollinearity were tested. The statistical techniques included descriptive statistics, correlation analysis, and multiple regression analysis.

Fundamental Assumptions Test

The data normality test is used as a visual inspection of the normal probability plot in consideration of an appropriate data analysis. If the data points fall on the diagonal line of the plot, then the variable is normally distributed (Field, 2009). The results of a normality probability plot indicate that the distribution is normal-looking because the data points mostly fall close to the symmetrical diagonal line (Appendix D).

Linearity means that the dependent variable is a linear function of the independent variables. A preferred method of detecting nonlinearity is an examination of residual plots (Field, 2009; Osborne and Waters, 2002). Residual plots show the standardized residuals and the predicted values. So, if the residuals expand and leave from linearity, then any systematic pattern or grouping of the residuals presents a violation of the linear. According to Appendix D, the results show that the residual points have no departures from linearity; thus it seems to randomly scatter about the horizontal line, meaning that the linearity test of this research is preferred.

The homoscedasticity is an equal variance of errors across all levels of the independent variables. In this research, this assumption was checked by visual inspection of a plot of the standardized residuals by the regression standardized predicted value. Heteroscedasticity is shown when the residuals are not evenly scattered around the zero (Field, 2009; Osborne and Waters, 2002). The testing shows that the residuals are randomly scattered above and below zero, and do not generate a specific

pattern. Thus, there is no condition of a heteroscedasticity problem in this research (shown as Appendix D).

The multicollinearity test is conducted to know the variance inflation factor (VIF) as an indicator to indicate whether an independent variable has a strong linear relationship with the other independent variables. If the VIF is less than the threshold of ten, then multicollinearity does not occur (Hair et al., 2010). As shown in table 10, 12, and 14, and according to Chapter 4, the VIF value of all constructs demonstrates the value is less than ten. Thus, that is a good value which has no concern for a multicollinearity problem for this research.

Descriptive Statistics

The descriptive statistics concern the data-gathering and summary, and the presentation of the research. The analysis is used to determine several data characteristics such as the mean and standard deviation. A mean score analysis is used to examine the extent of each construct. A standard deviation score is used to measure the dispersion of the score from the mean (Isa and Pope, 2011).

Correlation Analysis

Pearson's coefficient of correlation is the most widely-used method of measuring the degree of relationship between two variables. The value of the coefficient of correlation is ± 1. Positive values of a coefficient indicate a positive correlation between the two variables; whereas, negative values of coefficients indicate a negative correlation. A zero value of the coefficient indicates that there is no association between the two variables. Wholly, the value of the coefficient is nearer to +1 or –1 indicating a high degree of correlation between the two variables (Kothari, 2004). Here, Pearson's correlation coefficient is used to test the correlation among variables in this research.

Regression Analysis

The ordinary least squares (OLS) regression analysis is used to test all postulated hypotheses. All of both dependent and independent variables in this research are interval data. OLS is an appropriate method for examining the hypothesized relationships (Hair et al., 2010). The regression analysis used in this research is multiple regression analysis. Multiple regression analysis is conducted to see whether there is a

partial relationship between the independent and dependent variables. If sig > 0.05, then the null hypothesis is accepted. If sig < 0.05, then the null hypothesis is rejected. Regression is conducted to see the relationship between variables with the composite measurement dimensions of the professional audit proficiency towards audit quality, information benefit enhancement, information reliability increase, and audit effectiveness of auditors, including knowledge management competency as a moderator. Also, regression is conducted to see the relationship between an auditor's motivation variables and each dimension of the professional audit proficiency, including sustainable mindset as a moderator. According to the conceptual model, many equations are formulated to inspect all of those relationships that are related to the hypotheses on each sub-model in chapter two. All of those equations are based on the regression analysis statistic method. Moreover, the statistical equations are shown below.

The investigation of the relationships between five dimensions composed of professional audit proficiency and audit quality is presented in equation 1 as shown:

$$\textit{Equation 1:} \quad AUQ = \alpha_1 + \beta_1 ALC + \beta_2 AMI + \beta_3 ATI + \beta_4 ASO + \beta_5 AEF + \beta_6 AGE + \beta_7 PRC + \varepsilon_1$$

The investigation of the relationships between five dimensions composed of professional audit proficiency and information benefit enhancement is presented in equation 2 as shown:

$$\textit{Equation 2:} \quad IBE = \alpha_2 + \beta_8 ALC + \beta_9 AMI + \beta_{10} ATI + \beta_{11} ASO + \beta_{12} AEF + \beta_{13} AGE + \beta_{14} PRC + \varepsilon_2$$

The investigation of the relationships between five dimensions composed of professional audit proficiency and information reliability increase is presented in equation 3 as shown:

$$\textit{Equation 3:} \quad IRI = \alpha_3 + \beta_{15} ALC + \beta_{16} AMI + \beta_{17} ATI + \beta_{18} ASO + \beta_{19} AEF + \beta_{20} AGE + \beta_{21} PRC + \varepsilon_3$$

The investigation of the relationships between five dimensions composed of professional audit proficiency and audit effectiveness is presented in equation 4 as shown:

$$\textit{Equation 4:} \quad AUE = \alpha_4 + \beta_{22}ALC + \beta_{23}AMI + \beta_{24}ATI + \beta_{25}ASO + \beta_{26}AEF + \beta_{27}AGE + \beta_{28}PRC + \varepsilon_4$$

The investigation of the relationships between audit quality and information benefit enhancement is presented in equation 5 as shown:

$$\textit{Equation 5:} \quad IBE = \alpha_5 + \beta_{29}AUQ + \beta_{30}AGE + \beta_{31}PRC + \varepsilon_5$$

The investigation of the relationships between audit quality and information reliability increase is presented in equation 6 as shown:

$$\textit{Equation 6:} \quad IRI = \alpha_6 + \beta_{32}AUQ + \beta_{33}AGE + \beta_{34}PRC + \varepsilon_6$$

The investigation of the relationships among audit quality, information benefit enhancement, information reliability increase, and audit effectiveness presented in equation 7 as shown:

$$\textit{Equation 7:} \quad AUE = \alpha_7 + \beta_{35}AUQ + \beta_{36}IBE + \beta_{37}IRI + \beta_{38}AGE + \beta_{39}PRC + \varepsilon_7$$

The investigation of the relationships between five antecedents and audit learning capability is presented in equation 8 as shown:

$$\textit{Equation 8:} \quad ALC = \alpha_8 + \beta_{40}ASC + \beta_{41}CAI + \beta_{42}AED + \beta_{43}TDG + \beta_{44}SPI + \beta_{45}AGE + \beta_{46}PRC + \varepsilon_8$$

The investigation of the relationships between five antecedents and audit method integration is presented in equation 9 as shown:

$$Equation\ 9: \quad AMI = \alpha_9 + \beta_{47}ASC + \beta_{48}CAI + \beta_{49}AED + \beta_{50}TDG + \beta_{51}SPI + \beta_{52}AGE + \beta_{53}PRC + \varepsilon_9$$

The investigation of the relationships between five antecedents and audit technology implementation is presented in equation 10 as shown:

$$Equation\ 10: \quad ATI = \alpha_{10} + \beta_{54}ASC + \beta_{55}CAI + \beta_{56}AED + \beta_{57}TDG + \beta_{58}SPI + \beta_{59}AGE + \beta_{60}PRC + \varepsilon_{10}$$

The investigation of the relationships between five antecedents and audit skepticism orientation is presented in equation 11 as shown:

$$Equation\ 11: \quad ASO = \alpha_{11} + \beta_{61}ASC + \beta_{62}CAI + \beta_{63}AED + \beta_{64}TDG + \beta_{65}SPI + \beta_{66}AGE + \beta_{67}PRC + \varepsilon_{11}$$

The investigation of the relationships between five antecedents and audit ethics focus is presented in equation 12 as shown:

$$Equation\ 12: \quad AEF = \alpha_{12} + \beta_{68}ASC + \beta_{69}CAI + \beta_{70}AED + \beta_{71}TDG + \beta_{72}SPI + \beta_{73}AGE + \beta_{74}PRC + \varepsilon_{12}$$

The investigation of the moderating effects of knowledge management competency on the relationships between five dimensions composed of professional audit proficiency and audit quality is presented in equation 13 as shown:

$$Equation\ 13: \quad AUQ = \alpha_{13} + \beta_{75}ALC + \beta_{76}AMI + \beta_{77}ATI + \beta_{78}ASO + \beta_{79}AEF + \beta_{80}(ALC*KMC) + \beta_{81}(AMI*KMC) + \beta_{82}(ATI*KMC) + \beta_{83}(ASO*KMC) + \beta_{84}(AEF*KMC) + \beta_{85}AGE + \beta_{86}PRC + \varepsilon_{13}$$

The investigation of the moderating effects of knowledge management competency on the relationships between five dimensions composed of professional

audit proficiency and information benefit enhancement is presented in equation 14 as shown:

$$\textit{Equation 14: } IBE = \alpha_{14} + \beta_{87}ALC + \beta_{88}AMI + \beta_{89}ATI + \beta_{90}ASO + \beta_{91}AEF + \beta_{92}(ALC*KMC) + \beta_{93}(AMI*KMC) + \beta_{94}(ATI*KMC) + \beta_{95}(ASO*KMC) + \beta_{96}(AEF*KMC) + \beta_{97}AGE + \beta_{98}PRC + \varepsilon_{14}$$

The investigation of the moderating effects of knowledge management competency on the relationships between five dimensions composed of professional audit proficiency and information reliability increase is presented in equation 15 as shown:

$$\textit{Equation 15: } IRI = \alpha_{15} + \beta_{99}ALC + \beta_{100}AMI + \beta_{101}ATI + \beta_{102}ASO + \beta_{103}AEF + \beta_{104}(ALC*KMC) + \beta_{105}(AMI*KMC) + \beta_{106}(ATI*KMC) + \beta_{107}(ASO*KMC) + \beta_{108}(AEF*KMC) + \beta_{109}AGE + \beta_{110}PRC + \varepsilon_{15}$$

The investigation of the moderating effects of knowledge management competency on the relationships between five dimensions composed of professional audit proficiency and audit effectiveness is presented in equation 16 as shown:

$$\textit{Equation 16: } AUE = \alpha_{16} + \beta_{111}ALC + \beta_{112}AMI + \beta_{113}ATI + \beta_{114}ASO + \beta_{115}AEF + \beta_{116}(ALC*KMC) + \beta_{117}(AMI*KMC) + \beta_{118}(ATI*KMC) + \beta_{119}(ASO*KMC) + \beta_{120}(AEF*KMC) + \beta_{121}AGE + \beta_{122}PRC + \varepsilon_{16}$$

The investigation of the moderating effects of sustainable mindset on the relationships between five antecedents and audit learning capability is presented in equation 17 as shown:

$$\textit{Equation 17: } ALC = \alpha_{17} + \beta_{123}ASC + \beta_{124}CAI + \beta_{125}AED + \beta_{126}TDG + \beta_{127}SPI + \beta_{128}(ASC*SUM) + \beta_{129}(CAI*SUM) + \beta_{130}(AED*SUM) + \beta_{131}(TDG*SUM) + \beta_{132}(SPI*SUM) + \beta_{133}AGE + \beta_{134}PRC + \varepsilon_{17}$$

The investigation of the moderating effects of sustainable mindset on the relationships between five antecedents and audit method integration is presented in equation 18 as shown:

$$\begin{aligned} \textit{Equation 18: } AMI &= \alpha_{18} + \beta_{135}ASC + \beta_{136}CAI + \beta_{137}AED + \beta_{138}TDG + \beta_{139}SPI + \\ &\quad \beta_{140}(ASC*SUM) + \beta_{141}(CAI*SUM) + \beta_{142}(AED*SUM) + \\ &\quad \beta_{143}(TDG*SUM) + \beta_{144}(SPI*SUM) + \beta_{145}AGE + \beta_{146}PRC + \varepsilon_{18} \end{aligned}$$

The investigation of the moderating effects of sustainable mindset on the relationships between five antecedents and audit technology implementation is presented in equation 19 as shown:

$$\begin{aligned} \textit{Equation 19: } ATI &= \alpha_{19} + \beta_{147}ASC + \beta_{148}CAI + \beta_{149}AED + \beta_{150}TDG + \beta_{151}SPI + \\ &\quad \beta_{152}(ASC*SUM) + \beta_{153}(CAI*SUM) + \beta_{154}(AED*SUM) + \\ &\quad \beta_{155}(TDG*SUM) + \beta_{156}(SPI*SUM) + \beta_{157}AGE + \beta_{158}PRC + \varepsilon_{19} \end{aligned}$$

The investigation of the moderating effects of sustainable mindset on the relationships between five antecedents and audit skepticism orientation is presented in equation 20 as shown:

$$\begin{aligned} \textit{Equation 20: } ASO &= \alpha_{20} + \beta_{159}ASC + \beta_{160}CAI + \beta_{161}AED + \beta_{162}TDG + \beta_{163}SPI + \\ &\quad \beta_{164}(ASC*SUM) + \beta_{165}(CAI*SUM) + \beta_{166}(AED*SUM) + \\ &\quad \beta_{167}(TDG*SUM) + \beta_{168}(SPI*SUM) + \beta_{169}AGE + \beta_{170}PRC + \varepsilon_{20} \end{aligned}$$

The investigation of the moderating effects of sustainable mindset on the relationships between five antecedents and audit ethics focus is presented in equation 21 as shown:

$$\begin{aligned} \textit{Equation 21: } AEF &= \alpha_{21} + \beta_{171}ASC + \beta_{172}CAI + \beta_{173}AED + \beta_{174}TDG + \beta_{175}SPI + \\ &\quad \beta_{176}(ASC*SUM) + \beta_{177}(CAI*SUM) + \beta_{178}(AED*SUM) + \\ &\quad \beta_{179}(TDG*SUM) + \beta_{180}(SPI*SUM) + \beta_{181}AGE + \beta_{182}\,PRC + \varepsilon_{21} \end{aligned}$$

Whereas:

PAP = Professional Audit Proficiency as a whole
ALC = Audit Learning Capability
AMI = Audit Method Integration
ATI = Audit Technology Implementation
ASO = Audit Skepticism Orientation
AEF = Audit Ethics Focus
AUQ = Audit Quality
IBE = Information Benefit Enhancement
IRI = Information Reliability Increase
AUE = Audit Effectiveness
ASC = Audit Survival Commitment
CAI = Continuous Audit Improvement
AED = Audit Experience Diversity
TDG = Technology Development Growth
SPI = Stakeholder Pressure Intensity
SUM = Sustainable Mindset
KMC = Knowledge Management Competency
AGE = Tax Auditors Age
PRC = Tax Auditors Professional Certification
α = Constant
β = Regression coefficient
ε = Error term

Summary

This chapter details the research methods of this research for gathering data and examining all constructs in the conceptual model to answer the research questions. The details consist of the data collection procedure and the variable measurements which are the following for each of all variables in the conceptual model. Additionally, the instrumental verifications, including tests of validity and reliability, and the statistical analysis are presented. Finally, the definition of each construct and scale source is found.

Table 7: Definitions and Operational Variables of Constructs

Construct	Definition	Operational Variables	Scale Source
Dependent variable			
Audit effectiveness (AUE)	The degree of achieving audit objective, retaining existing customers, and increasing in new customers, trusting those who are involved in the audit task.	The degree to which one has established objectives that are achieved, retaining existing customers, increasing new customers, and trusting those who are involved in the audit task.	New Scale
Independent variables			
Audit learning capability (ALC)	The ability of an auditor to increase knowledge through prior work reviews, analysis of an event in the past, interpreting new audit issues, and adapting to perform audit tasks.	The ability of an auditor to gain knowledge by review, analysis, synthesis, interpretation from prior work, events in the past, and audit issues which allow one to carry out duties carefully and deliberately.	New Scale
Audit method integration (AMI)	The ability of an auditor to smoothly and efficiently combine various audit techniques, audit steps linkage, and coordination about audit procedures together into audit activities.	The ability of an auditor to perform by combining audit techniques, audit steps linkage, and coordination with a different source of information.	New Scale

Table 7: Definitions and Operational Variables of Constructs (continued)

Construct	Definition	Operational Variables	Scale Source
Independent variables (Con.)			
Audit technology implementation (ATI)	The ability of an auditor to use a computers, software, and tools in audit activities which allows one to gather information about the audit work quickly and efficiently.	The ability of an auditor to perform by using a computer, information technology, and a database in the audit activities which allows one to check the accuracy of electronic records.	New Scale
Audit skepticism orientation (ASO)	The ability of an auditor to perform audit tasks with a questioning mind, be alert to situations that may cause errors or fraud, and evaluate and summarize the audit evidence carefully.	The ability of an auditor to perform by searching for information and knowledge, being alert to risk indicators, questioning regarding the adequacy of audit evidence, carefully making decisions, and carefully reviewing audit evidence.	Laohamethanee, Ussahawanitchakit, and Boonlua (2013)
Audit ethics focus (AEF)	The ability of an auditor to apply the ethical principles in the context of an audit and determine an appropriate way to respond when faced with ethical dilemmas.	The ability of an auditor to perform by honestness in profession; not allowing the influence of others to override profession; maintaining knowledge and skill at the level required to ensure that a client receives professional service; and respecting the confidentiality of data acquired as a result of profession.	Khampichit and Ussahawanitchakit (2011)

Table 7: Definitions and Operational Variables of Constructs (continued)

Construct	Definition	Operational Variables	Scale Source
Mediating variables			
Audit quality (AUQ)	The discovery of reporting errors and breaches in financial statements that have occurred, and information in the audit report that is accurate and reflects data actual.	The degree of discovering and reporting the unusual client's financial statements, including conveying uncertain situations and critical audit matters to users.	Musig and Ussahawanitchakit (2011)
Information benefit enhancement (IBE)	The potency of presenting audited financial information that raises the degree of confidence of stakeholders' decisions to analyze and evaluate the position and performance of an audited firm accurately and precisely.	The potency in presenting information in the audit report that meets the needs of users for decision-making; conveying incremental information of warning signs, estimating events, and other critical issues.	New Scale
Information reliability increase (IRI)	The potency of presenting audited financial information that is unbiased, free from error, and reflects actual events and transactions under audit by the principles of fairness and relevant-sufficient evidence.	The potency of presenting information in the audit report that is actual by using a suitable audit process; an evidence-based audit report; and reflection of the real picture of events to assure that the financial statements are unbiased, and free from misstatements.	New Scale

Table 7: Definitions and Operational Variables of Constructs (continued)

Construct	Definition	Operational Variables	Scale Source
Antecedent variable			
Audit survival commitment (ASC)	The auditor's intention to continually remain in the audit profession with a focus on spending more effort to build value for stakeholders, a willingness to work hard to achieve their objectives, spending more time on developing knowledge and skills, and avoiding the use of dysfunctional audit behaviors.	The degree that auditors expend effort to build value for stakeholders, a willingness to work hard to achieve their objectives, spending more time on developing knowledge and skills, and avoiding the use of dysfunctional audit behaviors.	New scale
Continuous audit improvement (CAI)	The requirement of auditors to attend education and training in accounting standards, auditing standards, and related programs, regular interaction or communication with external environments which allows one to prepare audit guidance and the development of audit procedures.	The degree of an auditor's participation to education and training in accounting and auditing programs, new issues of interpretation, and communication or interaction with the external environments such as clients and others.	Khampichit and Ussahawanitchakit (2011)

Table 7: Definitions and Operational Variables of Constructs (continued)

Construct	Definition	Operational Variables	Scale Source
Antecedent variable (Con.)			
Audit experience diversity (AED)	The different kind of knowledge and skills which is the result obtained through the duration of tenure of job practice in the audit profession.	The degree to which auditors analyze and adapt the previous faulty knowledge, accomplishment from events in the past, and which crystallizing into operational knowledge and skills.	Musig and Ussahawanitchakit (2011)
Technology growth development (TGD)	The continuous expansion and changes in technology, both in parts used in the audit, and in parts of the preparation and presentation of financial statements of the firms.	The perceptions of an auditor regarding the expansion and change of technology within accounting and auditing that facilitate audit operations and processes.	Musig and Ussahawanitchakit (2011)
Stakeholder pressure intensity (SPI)	The degree of a stakeholder's expectations and impetus to demand certain actions from the auditors.	The perception of an auditor toward the level of requesting the information on the audit's activity, the level of competing with the rival, and the level of enforcing accounting and auditing standards.	New Scale

Table 7: Definitions and Operational Variables of Constructs (continued)

Construct	Definition	Operational Variables	Scale Source
Moderating variables			
Knowledge management competency (KMC)	The ability of an auditor in knowledge-sharing, technical exchange, data transfer, and brainstorming with others which allows one to learn and apply the achievement of audit objectives and the enhancement of the value of audit.	The degree to which an auditor engages in knowledge-sharing, problem-solving techniques exchange, data transfer regarding critical audit issues, and brainstorming with others.	New Scale
Sustainable mindset (SUM)	The auditor's respect for the profession, awareness of the importance of the profession, and belief of the persistence of the auditing profession.	The degree to which an auditor is proud of the prestige of the audit profession, having an awareness of the importance of the profession, and having a belief in the persistence of the auditing profession.	New Scale
Control variables			
Age (AGE)	Tax auditors age	Dummy variable 0 = other, 1 = less than an equal 40	Lee, Cheng, and Gao (2016)
Professional certification (PRC)	Tax auditors' professional certification holders possess	Dummy variable 0 = only tax auditor certification, 1 = both CPA and tax auditor certification	New scale

CHAPTER IV

RESULTS AND DISCUSSION

This chapter presents statistical analyses and results of hypotheses testing. This chapter is organized into three main sections. The first section describes the respondent characteristics and descriptive statistics findings. The second section presents hypotheses testing and its results. The third section shows a summary of the findings.

Respondent Characteristics and Descriptive Statistics

This research used a mail-survey questionnaire with a cover letter that was mailed to tax auditors in Thailand under the Revenue Department, Ministry of Finance Thailand, which offers certification to independent professionals as tax auditors. Professional audit proficiency is an important factor in the present business environment, especially with competition in the audit market, and the regulator's expectations that put pressure on tax auditors to gain professional audit proficiency. Consequently, tax auditors can give the data accordingly to support the research objectives and the unit of analysis of this research. The respondent characteristics are described by the demographic characteristics of tax auditors including gender, age, marital status, education level, the length of audit tenure, the period of tax auditor certificate holder, average monthly income, the number of asserted financial statements, and possession of CPA professional certification. Indeed, descriptive statistics shows the mean, standard deviation, and correlation coefficients and direction in the correlation matrix.

Respondent Characteristics

Table 1B in Appendix C shows the demographic characteristics of the 296 respondents, showing that most respondents are female (57.43 percent) and tax auditor ages are more than 40 years old (67.57 percent). Most of the respondents are married (51.69 percent). For the education level, most of the respondents earned a bachelor's degree (52.03 percent). Additionally, most respondents have a length of audit tenure as ranking between 5 and 10 years (31.42 percent) and the period of holding a certificate is

34.46 percent. Most of them received an average monthly income lower than 100,000 baht (73.31 percent) and have asserted financial statements of less than 50 statements per year (60.14 percent). Finally, the majority of the respondents possessed only tax auditor professional certification (72.64 percent).

Results of Descriptive Statistics

Table 8 reveals the descriptive statistics, including the means and standard deviation of all variables of the 296 usable respondents. In this research, all the variables are gathered from the survey and measured by a five-point Likert scale. The results show that the mean scores for all constructs are ranked 3.76 to 4.29. The mean scores for the measure of professional audit proficiency, namely, audit ethics focus, is 4.29, audit learning capability is 4.11, audit method integration is 4.08, audit technology implementation is 4.09, and audit skepticism orientation is 4.00 ordered from highest to lowest, respectively. The standard deviation value of each dimension of professional audit proficiency above is 0.54, 0.56, 0.56, 0.57, and 0.53 respectively. These results also show that tax auditors recognize the significance of professional audit proficiency in five dimensions. Besides, the mean scores for the consequences of professional audit proficiency consist of audit quality (4.03), information benefit enhancement (3.76), information reliability increase (4.00), and audit effectiveness (3.88). The standard deviation value of each consequence above is 0.59, 0.58, 0.56, and 0.63 respectively. These results also show that tax auditors are conscious of the significance of results of auditing which can be provided.

Furthermore, the results also show that the mean score of antecedent variables consists of audit survival commitment (4.23), continuous audit improvement (4.16), audit experience diversity (4.15), technology development growth (4.15), and stakeholder pressure intensity (4.14). The standard deviation value of each variable above are 0.53, 0.57, 0.57, 0.56, and 0.57, respectively. These results indicate that tax auditors are aware of the vital factors that motivate their audit behaviors. Moreover, the mean score of moderator variables, both of knowledge management competency and sustainable mindset, are 3.91 and 4.25; the standard deviation value is 0.64 and 0.60, respectively.

Table 8: Descriptive Statistics and Correlation Matrix

Variables	AUE	ALC	AMI	ATI	ASO	AEF	AUQ	IBE	IRI	ASC	CAI	AED	TDG	SPI	KMC	SUM	AGE	PRC
Mean	3.88	4.11	4.08	4.09	4.00	4.29	4.03	3.76	4.00	4.23	4.16	4.15	4.15	4.14	3.91	4.25	n/a	n/a
S.D.	0.63	0.56	0.56	0.57	0.53	0.54	0.59	0.58	0.56	0.53	0.57	0.57	0.56	0.57	0.64	0.60	n/a	n/a
ALC	.610***																	
AMI	.603***	.764***																
ATI	.626***	.640***	.675***															
ASO	.664***	.685***	.696***	.640***														
AEF	.570***	.661***	.594***	.613***	.744***													
AUQ	.618***	.642***	.618***	.553***	.707***	.716***												
IBE	.698***	.596***	.584***	.621***	.674***	.576***	.714***											
IRI	.700***	.651***	.648***	.590***	.739***	.709***	.798***	.761***										
ASC	.606***	.658***	.647***	.596***	.687***	.714***	.672***	.545***	.662***									
CAI	.572***	.563***	.527***	.555***	.603***	.603***	.608***	.591***	.608***	.723***								
AED	.633***	.674***	.646***	.639***	.735***	.711***	.680***	.612***	.703***	.755***	.760***							
TDG	.535***	.512***	.507***	.669***	.565***	.618***	.496***	.534***	.562***	.607***	.611***	.620***						
SPI	.599***	.638***	.552***	.558***	.626***	.667***	.613***	.605***	.617***	.663***	.680***	.665***	.693***					
KMC	.631***	.561***	.543***	.543***	.580***	.556***	.545***	.617***	.594***	.608***	.755***	.732***	.514***	.606***				
SUM	.609***	.578***	.536***	.526***	.613***	.741***	.616***	.510***	.604***	.745***	.651***	.700***	.625***	.697***	.560***			
AGE	.057	.019	.021	.175***	.061	.047	.017	.059	-.010	.047	.007	.034	.085	.043	.020	.054		
PRC	.145**	.084	.049	.097	.044	.005	.018	.127**	.054	-.004	.027	.021	.058	.032	.086	-.055	-.021	-

Note: *** $p < 0.01$, ** $p < 0.05$

Correlation Analysis

Table 8 shows the Pearson correlation coefficient of the all variables. Results demonstrate that all dimensions of professional audit proficiency have a significant, positive relationship with audit quality ($r = 0.553 - 0.716$; $p < 0.01$), information benefit enchantment ($r = 0.576 - 0.674$; $p < 0.01$), information reliability increase ($r = 0.590 - 0.739$; $p < 0.01$), and audit effectiveness ($r = 0.570 - 0.664$; $p < 0.01$). Moreover, the antecedent variables, including audit survival commitment ($r = 0.596 - 0.714$; $p < 0.01$), continuous audit improvement ($r = 0.527 - 0.603$; $p < 0.01$), audit experience diversity ($r = 0.639 - 0.735$; $p < 0.01$), technology development growth ($r = 0.507 - 0.669$; $p < 0.01$), and stakeholder pressure intensity ($r = 0.552 - 0.667$; $p < 0.01$) are significantly, positively related to all dimensions of professional audit proficiency.

Additionally, the correlations between the moderating variables of knowledge management competency are moderately correlated with all variables in this conceptual model ($r = 0.514 – 0.775$; $p < 0.01$). Sustainable mindset is moderately correlated with all variables in this conceptual model ($r = 0.510 – 0.745$; $p < 0.01$). Totally, the evidence shows that each variable is not highly correlated with each other, which is a sign that multicollinearity problems may not occur. Moreover, generally accepted levels of multicollinearity are analyzed using variance inflation factors (VIFs) (Hair et al., 2010).

Hypotheses Testing and Results

In order to verify the hypotheses, this research selects the full sample for multiple linear regression analysis. In addition, all hypotheses in this research are transformed into twenty-one equations. There are two dummy variables for auditor age and professional certification, which are included in equations for testing as follows.

The Effects of Professional Audit Proficiency on Audit Quality, Information Benefit Enhancement, Information Reliability Increase, and Audit Effectiveness

Figure 7: The Effects of Professional Audit Proficiency on Audit Quality, Information Benefit Enhancement, Information Reliability Increase, and Audit Effectiveness; and the Moderating Role of Knowledge Management Competency

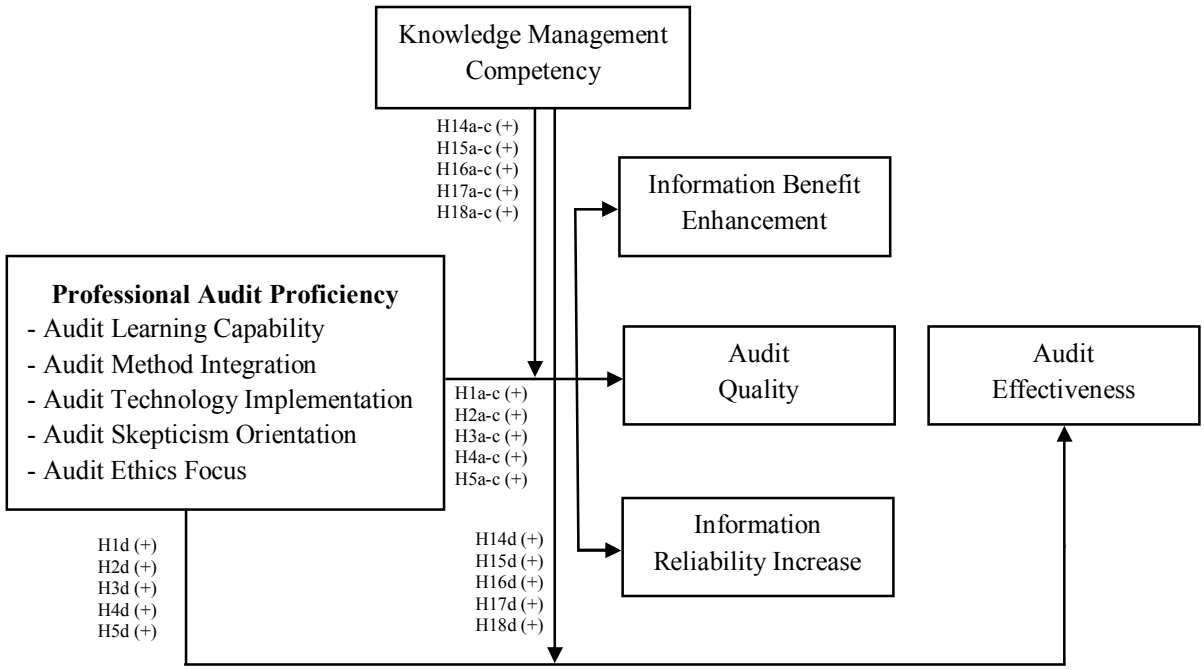


Figure 7 illustrates relationships among each dimension of professional audit proficiency and consequence variables based on Hypotheses 1a-1d, 2a-2d, 3a-3d, 4a-4d, and 5a-5d. This research proposes that each dimension of professional audit proficiency; namely, audit learning capability, audit method integration, audit technology implementation, audit skepticism orientation, and audit ethics focus are positively associated with the overall consequences, which are audit quality, information benefit enhancement, information reliability increase, and audit effectiveness. These hypotheses are analyzed by the multiple regression in equations 1, 2, 3, and 4 according to chapter 3.

Additionally, the role of moderating effects of knowledge management competency on the relationship between each dimension of professional audit proficiency and overall consequences is analyzed, based on Hypotheses 14a-14d, 15a-15d, 16a-16d, 17a-17d, and 18a-18d. This research proposes that the relationship of all hypotheses are positive, based on the analysis of these hypotheses by the regression equations 13, 14, 15, and 16 according to chapter 3.

Table 9: Descriptive Statistics and Correlation Matrix of Professional Audit Proficiency, Audit Quality, Information Benefit Enhancement, Information Reliability Increase, Audit Effectiveness, and Knowledge Management Competency

Variables	AUE	ALC	AMI	ATI	ASO	AEF	AUQ	IBE	IRI	KMC	AGE	PRC
Mean	3.88	4.11	4.08	4.09	4.00	4.29	4.03	3.76	4.00	3.91	n/a	n/a
S.D.	0.63	0.56	0.56	0.57	0.53	0.54	0.59	0.58	0.56	0.64	n/a	n/a
ALC	.610***											
AMI	.603***	.764***										
ATI	.626***	.640***	.675***									
ASO	.664***	.685***	.696***	.640***								
AEF	.570***	.661***	.594***	.613***	.744***							
AUQ	.618***	.642***	.618***	.553***	.707***	.716***						
IBE	.698***	.596***	.584***	.621***	.674***	.576***	.714***					
IRI	.700***	.651***	.648***	.590***	.739***	.709***	.798***	.761***				
KMC	.631***	.561***	.543***	.543***	.580***	.556***	.545***	.617***	.594***			
AGE	.057	.019	.021	.175***	.061	.047	.017	.059	.010	.020		
PRC	.145**	.084	.049	.097	.044	.005	.018	.127**	.054	.086	-.021	-

Note: *** $p < 0.01$, ** $p < 0.05$

Table 9 reveals the Pearson correlation coefficient, mean, and standard deviation of all variables. The results indicate that the mean scores for all constructs are ranked between 3.76 and 4.29 respectively. In addition, the standard deviation value for all constructs are ranked between 0.58 and 0.54 respectively.

Besides, the correlations among each dimension of professional audit proficiency, namely, audit learning capability (ALC), audit method integration (AMI), audit technology implementation (ATI), audit skepticism orientation (ASO), and audit ethics focus (AEF) are positively correlated with all consequence variables. Firstly,

the results show the positive correlation between each dimension of professional audit proficiency and audit quality ($r = 0.642, 0.618, 0.553, 0.707, 0.716$; $p < 0.01$, respectively). Secondly, each dimension of professional audit proficiency has a significant positive correlation to information benefit enhancement ($r = 0.596, 0.584, 0.621, 0.674, 0.576$; $p < 0.01$, serially). Thirdly, each dimension of professional audit proficiency is significantly and positively correlated to information reliability increase ($r = 0.651, 0.648, 0.590, 0.739, 0.709$; $p < 0.01$, in sequence). Finally, the results demonstrate that each dimension of professional audit proficiency is significantly, and positively correlated to audit effectiveness ($r = 0.610, 0.603, 0.626, 0.664, 0.570$; $p < 0.01$, respectively). These results show that each dimension of professional audit proficiency has a certain significance for audit quality, information benefit enhancement, information reliability increase, and audit effectiveness. When the level of a tax auditor's professional audit proficiency is high, the high level of the overall consequence variable is obtained.

Furthermore, knowledge management competency (KMC), as a moderator, has a significantly positive correlation with each dimension of professional audit proficiency ($r = 0.561, 0.543, 0.543, 0.580, 0.556$; $p < 0.01$, respectively), audit quality ($r = 0.545$; $p < 0.01$), information benefit enhancement ($r = 0.617$; $p < 0.01$), information reliability increase ($r = 0.594$; $p < 0.01$), and audit effectiveness ($r = 0.631$; $p < 0.01$).

Also, variance inflation factors (VIFs) are used to test multicollinearity problems in each part of the regression analysis. Table 10 reveals that the results in equations 1, 2, 3, and 4 indicate that the maximum VIF is 3.056, and the results in equations 13, 14, 15, and 16 show that the maximum VIF is 4.525, successively. Thus, the VIF value is well below the cut-off value of 10 (Hair et al., 2010). Subsequently, there are no significant multicollinearity problems existing in this research.

As shown in Table 10, it can be seen from the regression results, as to the impacts each dimension of professional audit proficiency had on its consequences composed of audit quality, information benefit enhancement, information reliability increase, and audit effectiveness.

First, the result shows that audit learning capability has a significant, positive effect on audit quality ($\beta_1 = 0.130$, $p < 0.05$) and audit effectiveness ($\beta_{22} = 0.135$,

$p < 0.10$) after controlling the relevant variables. The empirical results verify the establishment of the study hypotheses. This result implies that tax auditors' ability to learn is the vital factor to improve audit quality and audit effectiveness (Beck and Wu, 2006). Audit learning capability is a source of generating professional knowledge that is both a deep and broad understanding of work. Tax auditors' professional knowledge increase is based on the ability to learn and absorb knowledge from education-based training and work-based learning which opens up a wide vision, and allows an understanding of possible alternative actions or solution methods (Marriott et al., 2011). Furthermore, professional knowledge assists tax auditors to understand a client's accounting system which is used specifically by each client and helps appropriately interpret and apply auditing standards, taxation, and related rules (Carpenter, Durtschi, and Gaynor, 2011). As a result, this learning capability can enhance the quality of audit outputs and the effectiveness of an audit because the auditors' knowledge content difference produces a performance difference. ***Thus, hypotheses 1a and 1d are supported.***

Nevertheless, audit learning capability has no significant effect on information benefit enhancement (β_8= 0.115, $p > 0.10$) and information reliability increase (β_{15}= 0.090, $p > 0.10$). This result implies that the capability of tax auditors to learn does not help them to provide useful and reliable information to users. This may be because of the two possible reasons that can be explained as follows. First, they lack a personal motivation and interest in knowledge learning (Senik and Broad, 2011). It is tax auditors' responsibilities to verify only small enterprises which do not have complex transactions and gain low audit fees. Thus, if they believe that the present knowledge is adequate and sufficient to complete their work that is a match for their remuneration, then it is needless to learn and apply new knowledge in work which is undervalued. Second, nowadays one does not apply the auditor rotation rule for tax auditors. Surely, when the tenure is long, the tax auditor can focus on updating knowledge and getting deeper knowledge about their client's company, which improves the audit (Anis, 2014). However, professional knowledge has no linear development, but it is up to the learning curve which impacts access to new ideas, knowledge, and transforming recognition differently. Therefore, if they have a long tenure with the client, then it reduces the ability to learn and is hard to get updated knowledge, which reduces the ability of tax

auditors to provide reliable and useful information to users. ***Thus, hypotheses 1b and 1c are not supported.***

Second, the result shows that audit method integration has a significant, positive effect on audit quality (β_2= 0.117, $p < 0.10$) and information reliability increase (β_{16}= 0.137, $p < 0.05$) after controlling the relevant variables. This result is in line with previous research about the audit procedures that significantly affect audit quality (Sarwoko and Agoes, 2014). Because the auditor is aware of the impact of audit failure, they do not want to be found careless in litigation by accusing inadequate audit procedures to detect fraud. Therefore, the auditor must set more appropriate and effective selection, and implement audit methods in a financial audit which better enhances audit quality. The audit method linking capability gives a significant influence on the reliability of audited financial statements. And audit method integration enhances more accurate information and presents a real picture of an audited firm. ***Thus, hypotheses 2a and 2c are supported.***

However, the result also shows that audit method integration has no significance on information benefit enhancement (β_9= 0.036, $p > 0.10$) and audit effectiveness (β_{23}= 0.079, $p > 0.10$). Previous research suggested that the ability to link audit methods enhances the capability to provide beneficial information and promote effectiveness in an audit (Shoommuangpak and Ussahawanitchakit, 2009). However, in a Thailand context, most tax auditors do not have direct contact with their clients and do not audit at a client location. Instead, they contact accounting agents who provide bookkeeping and generate the enterprises' financial statements to clients. Therefore, tax auditors cannot use some audit methods such as assessing potential risk, assessing sufficient internal control, or operational observation. Moreover, the tax auditors received specific documents which accounting agents had to furnish, as well as some documents requested during tax audits, which is a disturbance and time-consuming. This notice is consistent with prior research which indicated that the client of an accounting agency had difficulty in locating documents requested during tax audits, as some documents requested were from old transactions (Fatt and Khin, 2012). Hence, tax auditors do not act within the scope stipulated in the notification (Fatt and Ling, 2008). That means the audit methods used depend on various documents received, and that results in tax auditors being unable to use various concurrent methods. For this

possible reason, it may cause audit method integration to have no influence on information benefit enhancement and audit effectiveness. ***Consequently, hypotheses 2b and 2d are not supported.***

Third, the result indicates that audit technology implementation has a significant, positive effect on information benefit enhancement (β_{10}= 0.251, $p < 0.01$) and audit effectiveness (β_{24}= 0.248, $p < 0.01$) after controlling the relevant variables. This result implies that the ability of tax auditors to use audit technology enhances providing the value of information to users, and leads to the achievement of tax auditors. This is because tax auditors use technology to support a systematic approach to information management. Information technologies have been used to support audit practices, enhance changes in information processing, and provide tax auditors with access to clients' databases and data about specific clients and others (Abou-El-Sood, Kotb, and Allam, 2015). Such technologies have been associated with improved audit procedures, reducing the time that is spent on each audit, and reducing audit risk factors. These results are consistent with prior research that explains increased tax auditor performance as well as producing more efficient information due to the implementation of data collection and inspection processing by using audit technology that was found to be faster than the manual approach (Maria and Ariyani, 2014). Moreover, information tools are useful in terms of detecting cases of tax evasion and ensuring revenues to the states, which help tax auditors to increase tax audit effectiveness (Bierstaker, Burnaby, and Thibodeau, 2001; Drogalas et al., 2015). ***Thus, hypotheses 3b and 3d are supported.***

Nevertheless, the result also shows that audit technology implementation has no significance for audit quality (β_3= 0.004, $p > 0.10$) and information reliability increase (β_{17}= 0.060, $p > 0.10$). Although prior research suggests that the ability to use or adapt technology during the audit process is composed of the use of a client's company technology system and the use of an auditor's technology system. Regarding the ability to use a client's company technology system, it helps tax auditors to access and retrieve information from key electronic files, and effectively check the accuracy of electronic records from the client's accounting system (Abou-El-Sood, Kotp, and Allam, 2015). In terms of an ability to use an auditor's technology system, it helps tax auditors to accurately record the audit finding, precise information processing, preparing audit

reports, and making timely decisions (Maria and Ariyani, 2014). However, the result of this research indicates that the ability to use the technology of tax auditors cannot increase the reliability of information contained in an audit report and the quality of audit under the preparer's perspective or tax auditors. This may be because of two key reasons that can be explained as follows.

First, the extra cost of implementing technology is a barrier to use technology. The cost is a factor that prevents using technology in work (Senik and Broad, 2011). Exactly, the utilization of technology will use both some hardware and software which include investments to be acquired, and that means an extra cost to the tax auditors. Moreover, the characteristic work of auditing is seasonal, especially when the use of the audit technology may be limited to a few months of hard work. Thus, the extra costs are a barrier for tax auditors to use technology in their work, so long as paper-based work still helps to complete the audit work as scheduled. Hence, the ability of tax auditors to use audit technology does not have an influence on audit quality and the reliability of information. Second, the lack of the technological knowledge and training of tax auditors reduces the level of audit technology utilization. Logically, if the individuals have no knowledge of information technology and have not trained to enhance their capabilities, then the utilization of information technology systems is expected to be at a low level (Ansi, Ismaill, and Swidi, 2013). Therefore, the lack of information technology knowledge and training decrease the capability to use technology in an audit. ***Thus, hypotheses 3a and 3c are not supported.***

Fourth, the result demonstrates that audit skepticism orientation has a significant, positive effect on audit quality (β_4= 0.268 $p < 0.01$), information benefit enhancement (β_{11}= 0.373, $p < 0.01$), information reliability increase (β_{18}= 0.335, $p < 0.01$), and audit effectiveness (β_{25}= 0.326, $p < 0.01$) after controlling the relevant variables. These findings indicate that performing audit tasks with careful doubt and a questioning mindset will enhance the opportunity to detect and correct errors or deviations from professional standards, and raise the level of audit quality (Knechel et al., 2013; Laohamethanee, Ussahawanitchakit, and Boonlua, 2013). Tax auditors with an attitude of professional skepticism cautiously set methods in response to the assessed risk of fraud, carefully evaluate the collected audit evidence, and honestly express an opinion on the financial statements (Hurtt, 2010; Silvija, 2014). Additionally, the

assessed risk of fraud includes an opportunity for tax infringements. Hence, tax auditors with a skeptical mindset should consider the presence of risk factors such as an understatement of revenues and assets, understatement of costs and liabilities, inappropriate presentations, inaccuracy of presented tax documents, and incorrect reports of tax liabilities. This may lead to searching for more knowledge, gathering additional evidence, and even proposing an adjustment of some items to the client. Thus, tax auditors who employ skepticism may enhance the quality of their work. Also, high audit quality leads to confidence and reliable information which lead to improving audit effectiveness. ***Thus, hypotheses 4a, 4b, 4c, and 4d are supported.***

Finally, the result reveals that audit ethics focus has a significant, positive effect on audit quality (β_5= 0.268 $p < 0.01$) and information reliability increase (β_{19}= 0.335, $p < 0.01$) after controlling the relevant variables. This result implies that tax auditors who perform auditing under the baseline of professional ethics provide audit quality and raise information reliability through audit operation transparency which accurately makes auditors' reports and increases audit report value. Financial statements are provided, based on accounting standards and tax rules. Thus, tax auditors' responsibilities are to verify whether the financial statements are materially misstated which affect the scope of the auditing. Consequently, auditors who work with competency and due care in accounting principles, taxation, and complying with auditing standards, give positive influence to their quality of performance in audit results (Adeyemi and Fagbemi, 2011). Importantly, the consequences of the lack of professional ethics have also become more salient as a result of audit failures and a public discussion of the failure. Thus, the tax auditors who focus on ethical factors such as concern about potential losses to shareholders, professional integrity, independence, and public interest make ethical judgments in the public interest, and perform audit transparency which enhances an auditor's report with reliability (Khampichit and Ussahawanitchakit, 2011; Zarefar, Andreas, and Zarefar, 2016). ***Thus, hypotheses 5a and 5c are supported.***

Conversely, audit ethics focus has no significance on information benefit enhancement (β_{12}= 0.036, $p > 0.10$) and audit effectiveness (β_{26}= 0.079, $p > 0.10$). The possible reason can be described as follows. The previous research has suggested that the presence of a code of ethics has a positive impact on ethical behaviors which works

toward the quality of auditing output and assists the auditors to be able to perform fairly without being affected by the judgment of others (Furiada and Kurnia, 2015; Zarefar, Andreas, and Zarefar, 2016). Nonetheless, some prior research found that the lack of positive relationship between the presence of a code of ethics and an individual's ethical behavior. The mere presence and enforcement of professional codes do not affect individual ethical decision-making, because professional codes usually express rather general guidelines and these general instructions are not helpful in specific ethical situations (Pater and Van Gils, 2003). Additionally, professional ethics are influenced by the cultural environment or the community where the profession is, the professional environment, the workplace, and personal experiences (Syamsuddin et al., 2014). Furthermore, in the case of the interdependence of audit fees, if the needs of tax auditors depend on the audit fees that will be received from the client, it makes tax auditors serve or advocate the interests of the client, especially for tax auditors who have few clients. Therefore, if tax auditors are not independent of their clients, then their opinions will not add anything that beneficial to others. Tax auditors who are concerned more with stakeholder benefits when performing auditing have less audit operation transparency (Khampichit and Ussahawanitchakit, 2011). Moreover, in a Thailand context, the culture of patronizing or being kind-hearted with one another causes tax auditors to be willing to compromise their objectivity or overlook key information in order to maintain a client relationship, retain the client, or retain non-audit services from the client. Therefore, it leads to an ethical violation and may be the cause for no significance for beneficial information that is providing audit effectiveness. ***Thus, hypotheses 5b and 5d are not supported.***

In conclusion, these findings suggest that each dimension of professional audit proficiency, namely audit learning capability, audit method integration, audit technology implementation, audit skepticism orientation, and audit ethics focus on that which affects audit quality, information benefit enhancement, information reliability increase, and audit effectiveness. Especially, audit skepticism orientation is the most important dimension which influences tax audit outcomes. As aforementioned earlier, the attitude of professional skepticism is necessary for tax auditors, which produces a critical assessment, with a mind that always questions the validity of the audit evidence obtained, and being careful of audit evidence which raises questions concerning the

reliability of the documents. Tax auditors should exercise and maintain a skeptical judgment and skeptical actions throughout all steps to gather audit evidence as a basis for providing an audit opinion.

In addition, from the control variable of the regression analysis for analysis, a tax auditor's age has no significant influences on audit quality (β_6= -0.049, $p > 0.10$), information benefit enhancement (β_{13}= -0.024, $p > 0.10$), information reliability increase (β_{20}= -0.125, $p > 0.10$), and audit effectiveness (β_{27}= -0.023, $p > 0.10$). Thus, the relationships among professional audit proficiency's dimensions and its consequences are not influenced by tax auditor age. The possible reason is that the tax auditors perform only a chance inspection of small and medium enterprises' statements (Revenue Department, 2002). Also, regulations prescribe strong legal punishments for their dysfunctional behaviors, while tax auditors gain low audit fees per statement. Thus, either young tax auditors or older ones must focus on their duties, offer highly beneficial information, and respond to users' needs, to ensure long-term retention of their job. Hence, audit quality, information benefit enhancement, information reliability increase, and audit effectiveness are not impacted by the age of tax auditors.

Furthermore, professional certification is significantly positive on information benefit enhancement (β_{14}= 0.168, $p < 0.10$) and audit effectiveness (β_{28}= 0.204, $p < 0.05$). This result demonstrates that tax auditors who hold both tax audit and CPA certification can provide useful information for users and gain greater audit effectiveness than others who possess only tax auditor certification. Holders of CPA certification may be viewed as having more expertise, and offer a higher quality of skills and knowledge needed for tax audit engagements because the CPA certification requires an exam and practical experience before registering. Thus, the tax auditors who hold both certifications provide a higher quality of information and gain greater audit effectiveness than who with only a tax audit certification.

Additionally, professional certification has no significant effect on audit quality (β_7= -0.028, $p > 0.10$) and information reliability increase (β_{21}= 0.038, $p > 0.10$). The number of professional certifications held does not have an influence on tax auditors to provide audit quality and reliability of information. This result conflicts with previous research in that the success or failure of any audit depends upon the qualifications of the auditors (Dandago and Subhi, 2013). However, the possible reason

is that both audit quality and reliability of information are important characteristics that present the quality of tax auditors. Thus, either tax auditors or CPAs are necessary to focus on providing the quality of an audit and reliable information to users. Therefore, professional certification does not have an impact on the quality of audit result and the reliability of information.

The Role of the Moderating Effect of Knowledge Management Competency

As shown in Table 10, it can be seen from the regression results as to the moderating effect of knowledge management competency on the relationships among the five dimensions of professional audit proficiency and audit outcomes.

Overall, as can be seen from equation 13, the sign of the variables' coefficients remains unchanged, p-value slightly decreases (ALC and AMI), and an adjusted R^2 value slightly increases (0.014) when compared with before intervention (equation 1). Additionally, the sign of variables' coefficients (equation 14) remains unchanged, p-value is also unchanged, and adjusted R^2 value slightly increases (0.039) when compared with before intervention (equation 2). From equation 15, the sign of variables' coefficients remains unchanged, p-value is also unchanged, and adjusted R^2 value slightly increases (0.012) when compared with before intervention (equation 3). Lastly, the sign of variables' coefficients (equation 16) remains unchanged, p-value slightly decreases (ALC), and adjusted R^2 value slightly increases (0.042) when compared with before intervention (equation 4).

Table 10: Results of the Effects of Professional Audit Proficiency on Audit Quality, Information Benefit Enhancement, Information Reliability Increase, and Audit Effectiveness, and a Moderating Role of Knowledge Management Competency

Independent Variables	Dependent Variables							
	AUQ Equation 1 (H1a-5a)	**AUQ Equation 13 (H14a-18a)**	**IBE Equation 2 (H1b-5b)**	**IBE Equation 14 (H14b-18b)**	**IRI Equation 3 (H1c-5c)**	**IRI Equation 15 (H14c-18c)**	**AUE Equation 4 (H1d-5d)**	**AUE Equation 16 (H14d-18d)**
Audit learning capability (ALC)	**.130**** **(.064)**	**.129*** **(.067)**	.115 (.070)	.077 (.072)	.090 (.062)	.049 (.065)	**.135*** **(.070)**	.102 (.071)
Audit method integration (AMI)	**.117*** **(.069)**	.071 (.069)	.036 (.071)	-.003 (.073)	**.137**** **(.063)**	**.142**** **(.067)**	.079 (.070)	.058 (.072)
Audit technology implementation (ATI)	.004 (.056)	.012 (.057)	**.251***** **(.062)**	**.217***** **(.061)**	.060 (.055)	.048 (.055)	**.248***** **(.061)**	**.184***** **(.060)**
Audit skepticism orientation (ASO)	**.268***** **(.064)**	**.276***** **(.065)**	**.373***** **(.070)**	**.322***** **(.070)**	**.335***** **(.062)**	**.286***** **(.063)**	**.326***** **(.070)**	**.264***** **(.069)**
Audit ethics focus (AEF)	**.365***** **(.060)**	**.366***** **(.062)**	.051 (.066)	.048 (.066)	**.292***** **(.058)**	**.290***** **(.060)**	.042 (.066)	-.002 (.066)
Moderator: Knowledge management competency (KMC)		.043 (.051)		**.247***** **(.054)**		**.146***** **(.049)**		**.308***** **(.053)**
ALC*KMC (H14a-d)		**.111*** **(.059)**		-.026 (.062)		-.038 (.057)		-.062 (.062)
AMI*KMC (H15a-d)		.051 (.058)		-.044 (.062)		-.014 (.056)		-.074 (.061)
ATI*KMC (H16a-d)		-.054 (.058)		.023 (.062)		**.0101*** **(.056)**		.027 (.061)
ASO*KMC (H17a-d)		**-.111*** **(.064)**		-.072 (.068)		-.079 (.062)		.072 (.067)
AEF*KMC (H18a-d)		.086 (.073)		**.162**** **(.078)**		.063 (.071)		-.001 (.077)
Control Variables: Age (AGE)	-.049 (.081)	-.041 (.081)	-.024 (.089)	-.002 (.086)	-.125 (.078)	-.098 (.078)	-.023 (.088)	-.009 (.085)
Professional certification (PRC)	-.028 (.084)	-.039 (.084)	**.168*** **(.091)**	.141 (.089)	.038 (.081)	.037 (.081)	**.204**** **(.091)**	**.170**** **(.089)**
Adjusted R^2	**.595**	**.609**	**.521**	**.560**	**.624**	**.636**	**.525**	**.567**
Maximum VIF	**3.056**	**4.525**	**3.056**	**4.525**	**3.056**	**4.525**	**3.056**	**4.525**

Note: Beta coefficients with standard errors in parenthesis, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

The results of the moderating effect of knowledge management competency are described as follows:

Knowledge management competency has a positive and statistically significant effect on the audit learning capability-audit quality relationship (β_{80}= 0.111, $p < 0.10$). This result indicates that higher knowledge management competency increases the positive impact of audit learning capability on audit quality. Tax auditors participate with others to discuss and share knowledge, thus enabling them to develop and grow on a broad scale. Thus, knowledge-sharing can help tax auditors leverage their skills, knowledge, and optimal practices that can help to identify fraud risk factors and fraud risk assessments which improve audit quality (Brazel, Carpenter, and Jenkins, 2010). Besides, tax auditors with the ability to learn collaboration with high knowledge management competency influences audit quality.

However, the findings show that knowledge management competency has no significant moderating effects on the relationship between audit learning capability and its consequences which consist of information benefit enhancement (β_{92}= -0.026, $p > 0.10$), information reliability increase (β_{104}= -0.038, $p > 0.10$), and audit effectiveness (β_{116}= -0.062, $p > 0.10$). The possible reason is that tax auditors realizing about audit knowledge is a major role to enable the audit tasks to succeed and create value to users. Therefore, they are must possess the required business knowledge and related rule to avoid and mitigate the associated risks of audit work by learning and obtaining appropriate and sufficient clients' business knowledge. Thus, tax auditors normally use and apply their initial audit knowledge. Also, tax auditors' adoption of new knowledge is influenced by refining and innovating by means of previous experiences and information sources (Rodgers, Mubako, and Hall, 2017). Thus, knowledge management competency does not moderate the relationship between audit learning capability and audit results. For such a reason, this may reduce the moderating effect of knowledge management competency on the relationships among audit learning capability and information benefit enhancement, information reliability increase, and audit effectiveness. ***Thus, hypothesis 14a is supported, while hypotheses 14b, 14c, and 14d are not.***

In addition, knowledge management competency has no significant, moderating effects on the relationship between audit method integration and its

consequences: audit quality (β_{81}= 0.051, p > 0.10), information benefit enhancement (β_{93}= -0.044, p > 0.10), information reliability increase (β_{105}= -0.014, p > 0.10), and audit effectiveness (β_{117}= -0.074, p > 0.10). Prior research has suggested that mentoring others or sharing knowledge can improve the efficiency and effectiveness of audit procedures (Lee et al., 2016). However, auditing is a process that uses an appropriate adherence to a methodology; and meanwhile, the audits of historical financial information are mandated by regulations and laws through suitable audit methods creation which is a key role for the operating audit. Besides, the integrated audit process and objective setting in an audit help tax auditors to avoid and mitigate the risk purposes of auditing work, and to deliver audit quality services to clients. Hence, knowledge management competency has no potential influence on the relationships among audit method integration and audit quality, information benefit enhancement, information reliability increase, and audit effectiveness. ***Consequently, hypotheses 15a, 15b, 15c, and 15d are not supported.***

Besides, knowledge management competency has a positive and statistically significant effect on audit technology implementation-information reliability increase relationship (β_{106}= 0.101, p < 0.10). This result indicates that knowledge management competency increases the positive impact of audit technology implementation on information reliability increase. However, the main effect of audit technology implementation on information reliability increase is not present, so that it cannot interpret this result. Furthermore, this result shows that knowledge management competency has no significant moderating effects on the relationship between audit technology implementation and its consequences: audit quality (β_{82}= -0.054, p > 0.10), information benefit enhancement (β_{94}= 0.023, p > 0.10), and audit effectiveness (β_{118}= 0.027, p > 0.10). The possible reason is that tax auditors' responsibilities are to verify small financial statements with no complex transactions (Musig and Ussahawanitchakit, 2011). Tax auditors who perform audit duties by using audit technology to analyze and access electronic information accurately build valuable audit outcomes sufficiently, by which tax auditors may reduce the use of knowledge management competency. Thus, knowledge management competency has no potential influence on the relationships among audit technology implementation and audit quality, information benefit enhancement, and audit effectiveness. ***Hence, hypothesis 16c is supported, but hypotheses 16a, 16b, and 16d are not.***

Additionally, knowledge management competency has no significant moderating effects on the relationships between audit skepticism orientation and its consequences: information benefit enhancement (β_{95}= -0.072, p > 0.10), information reliability increase (β_{107}= -0.079, p > 0.10), and audit effectiveness (β_{119}= 0.072, p > 0.10). Prior research found that knowledge transfer plays a vital role in enhancing auditor professional skepticism, thereby improving the accuracy of auditor judgments in audit engagement planning (Rodgers, Mubako, and Hall, 2017). However, tax auditors who perform audit tasks having a high level of skeptical mind aim to respond to users' needs. They are already aware of the conservative principles, and then they believe that professional skepticism is important to reach their goals. Therefore, they try to use a questioning mind for looking and providing the information which is beneficial and reliable to users. Such a reason may reduce a moderating effect of knowledge management competency on the relationships among audit skepticism orientation and information benefit enhancement, information reliability increase, and audit effectiveness.

Interestingly, the finding of hypotheses 17a is opposite of the expectation of this research. Knowledge management competency has a negative and statistically significant effect on the audit skepticism orientation-audit quality relationship (β_{83}= -0.111, p < 0.10). Though, audit skepticism orientation is still the key factor that has a direct effect on audit quality. The interaction of knowledge management competency and audit skepticism orientation has become a significant negative influence on audit quality. This finding may explain that although audit skepticism orientation focuses on a questioning mind to evaluate the sufficiency and appropriation of the audit evidence, a skeptical mind uses mostly individual judgments (Knechel et al., 2013). Meanwhile, the ability to share and absorb audit knowledge is important to the tax auditor because this knowledge is used to consider suitable audit steps or important audit judgments. Thus, the higher level of knowledge management competence may lead to an inverse effect on audit quality. Especially, the clients are not satisfied with the audit when tax auditors use mostly skeptical behaviors (Ohman, Hackner, and Sorbom, 2012). Therefore, tax auditors with a focus on high audit skepticism may reduce the concern of a red flag when performing an audit task with high knowledge management competency. ***Thus, hypotheses 17a, 17b, 17c, and 17d are not supported.***

Furthermore, knowledge management competency has a positive and statistically significant effect on the audit ethics focus-information benefit enhancement relationship (β_{96}= 0.162, p < 0.05). This result indicates that higher knowledge management competency increases the positive impact of audit ethics focus on information benefit enhancement. However, the main effect of audit ethics focus on information benefit enhancement is not present, so that it cannot interpret this result. Nonetheless, knowledge management competency has no significant moderating effects on the relationship between audit ethics focus and its consequences: audit quality (β_{84}= 0.086, p > 0.10), information reliability increase (β_{108}= 0.063, p > 0.10), and audit effectiveness (β_{120}= -0.001, p > 0.10). There is one possible reason such as tax auditors who are always concerned about ethical principles. They already believe that their behavior with high ethics is important to building confidence for stakeholders (Adeyemi and Fagbemi, 2011). For such a reason, this may reduce a moderating effect of knowledge management competency on the relationships among audit ethics focus and audit quality, information reliability increase, and audit effectiveness. ***Consequently, hypotheses 18a, 18c, and 18d are not supported, but hypothesis 18b is supported.***

Based on the aforementioned above, tax auditors do not become aware of the essential role of knowledge management competency which can enable them to best exercise their proficiency, and which may affect the performance and outcome of an audit. In spite of prior research that illustrates knowledge management playing an important role in enhancing auditor professional skepticism; it thereby is improving the accuracy of auditor judgments that were significant factors in the planning of an audit engagement, it improves the relations between fraud risk factors and fraud risk assessments, and then it raises the audit quality (Brazel, Carpenter, and Jenkins, 2010; Lee et al., 2016; Nassir, Sanusi, and Ghani, 2016). However, one's adoption of new knowledge is influenced by refining and innovating of previous experiences and information sources. Thus, tax auditors consider that any new information is a match-process with tax auditors' existing models, such as a resulting judgment that is still based on the initial judgment. Therefore, tax auditors will match-process any new information they obtain from final consultations against their original knowledge and previous experiences in final decisions (Rodgers, Mubako, and Hall, 2017).

For the control variables, tax auditor age has no significant influence on the moderating effect of knowledge management competency on the relationships among professional audit proficiency's dimensions, audit quality (β_{85}= -0.041, p > 0.10), information benefit enhancement (β_{97}= -0.002, p > 0.10), information reliability increase (β_{109}= -0.098, p > 0.10), and audit effectiveness (β_{121}= -0.009, p > 0.10). Thus, the moderating effect of knowledge management competency on the relationships among professional audit proficiency's dimensions and its consequences are not influenced by tax auditor age.

Furthermore, professional certification also shows no significant influences on the moderating effect of knowledge management competency on the relationships among professional audit proficiency's dimensions, audit quality (β_{86}= -0.039, p >0.10), information benefit enhancement (β_{98}= 0.141, p > 0.10), and information reliability increase (β_{110}= 0.037, p > 0.10). Thus, the moderating effect of knowledge management competency on the relationships among professional audit proficiency's dimensions and its consequences are not influenced by the number of professional certificates that tax auditors possessed. Unexpectedly, professional certification has a positive influence on the relationship between professional audit proficiency's dimensions and audit effectiveness (β_{122}= 0.170, p < 0.05).

The Effects of Audit Quality, Information Benefit Enhancement, Information Reliability Increase on Audit Effectiveness

Figure 8: The Effects of Audit Quality, Information Benefit Enhancement, Information Reliability Increase on Audit Effectiveness

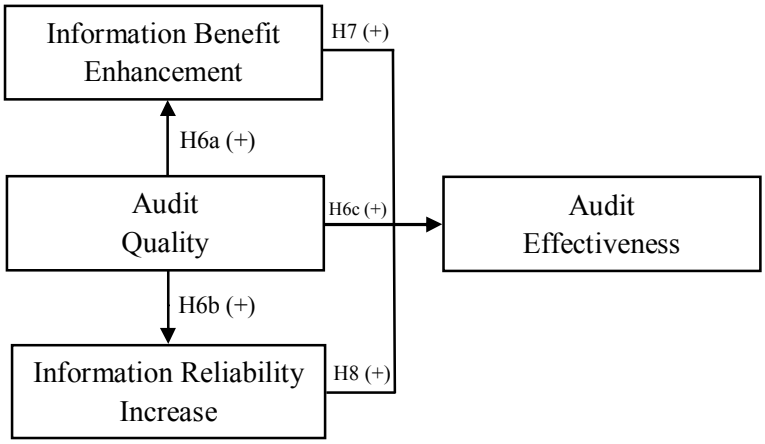


Figure 8 illustrates relationships among audit quality, information benefit enhancement, information reliability increase, and audit effectiveness based on Hypotheses 6a-6c, 7, and 8. This research proposes that audit quality is positively associated with information benefit enhancement and information reliability increase. These hypotheses are analyzed by the multiple regression equations in equations 5 and 6 according to chapter 3. In addition, this research also proposes that audit quality, information benefit enhancement, and information reliability increase are positively associated with audit effectiveness. These hypotheses are analyzed by the multiple regression equations in equation 7 according to chapter 3.

Table 11 reveals the Pearson correlation coefficient and descriptive statistics including mean and standard deviation. The results indicate that the mean scores for all constructs are ranked from 3.76 to 4.03 respectively. Additionally, the results indicate that the standard deviation value for all constructs are ranked from 0.63 to 0.59 respectively. Certainly, the correlations among audit quality (AUQ), information benefit enhancement (IBE), information reliability increase (IRI), and audit effectiveness (AUE) are positively correlated at a 1% level (r = 0.714, 0.798, 0.618, respectively). Moreover, information benefit enhancement is significantly, positively correlated with an audit effectiveness level of 1% (r = 0.698). Information reliability increase is significantly and positively correlated to an audit effectiveness level of 1% (r = 0.700).

Table 11: Descriptive Statistics and Correlation Matrix of Audit Quality, Information Benefit Enhancement, Information Reliability Increase, and Audit Effectiveness

Variables	AUE	AUQ	IBE	IRI	AGE	PRC
Mean	3.88	4.03	3.76	4.00	n/a	n/a
S.D.	0.63	0.59	0.58	0.56	n/a	n/a
AUQ	.618***					
IBE	.698***	.714***				
IRI	.700***	.798***	.761***			
AGE	.057	.017	.059	-.010		
PRC	.145**	.018	.127**	.054	-.021	-

Note: *** p < 0.01, ** p < 0.05

Besides, VIFs are used to test multicollinearity problems in each part of the regression analysis. Table 11 reveals the results in equations 5, 6, and 7, and shows that the maximum VIF is 1.001, 1.001, and 3.489, respectively. Thus, the VIF value is well below the cut-off value of 10 (Hair et al., 2010). Subsequently, there are no significant multicollinearity problems existing in this research.

As shown in Table 12, it can be seen from the regression results that audit quality has a statistically significant and positive impact on information benefit enhancement (β_{29}= 0.713, $p < 0.01$) and information reliability increase (β_{32}= 0.800, $p < 0.01$) after controlling the relevant variables. This result is indicating that high audit quality is very useful to produce beneficial and reliable financial information due to the high-quality auditing process that could press management to correctly implement the generally accepted accounting principles. Also, the ability to comply with auditing standards is an auditor's professional responsibility in the audit to discover violations in financial statements; then, it leads to providing reliable information to users. Furthermore, high audit quality helps to prepare beneficial information for users because tax auditors with high-quality audit can access useful information and timely report the valuable information to users. Commonly, reliable and beneficial information enhances user's confidence in making a business decision and reducing potential risk. Therefore, the potency to provide information with accurate, concise, easily understood, and un-biased representation of the real picture of a company are based on the high quality of the tax auditors (Alrshah, 2015). Hence, the empirical results verify the establishment of the study hypothesis. ***Hence, hypotheses 6a and 6b are supported***.

Interestingly, the audit quality has no significance for audit effectiveness (β_{35}= 0.062, $p > 0.10$). A possible reason for explaining this is that tax auditors are more likely to provide quality of audit results for presenting the performance and obtaining the public's respect and confidence. If the audit quality shown in the audit report does not represent the real picture of an audited firm, or does not meet the users' expectations, the users tend to have negative perceptions of the value of an audit based on audit quality. Consistent with the taxpayers' opinions, the tax auditors have more interest in finding fault and penalizing the firm for wrongdoings rather than helping the firm to do the right thing (Isa and Pope, 2011). On the other hand, tax agents hope that tax auditors intend to find fault to impose penalties for incorrect profits or understatements of the revenue during the tax audit (Muhammad, 2013). Therefore, tax auditors are concerned with balance between views of taxpayers and tax agents, affecting audit effectiveness, especially to retain old clients, obtain potential clients, and

having litigation opportunity. Hence, on the side of tax auditors, the high level of audit quality reduces the effectiveness of tax auditors. ***Hence, hypothesis 6c is not supported***.

Additionally, the finding illustrates that information benefit enhancement has a significant and positive impact on audit effectiveness (β_{36}= 0.353, $p < 0.01$) after controlling the relevant variables. The result indicates that the benefit of information which is provided by tax auditors can increase the additional information which helps users understand the whole operation and performance of the firm better. Financial statements with audit reports are the face that a company shows to outsiders such as banks, stockholders, investors, and government agencies. Therefore, if tax auditors give owners comfort from an individual assurance that the financial statements are fairly presented; current and potential investors or lenders are less likely to challenge business decisions or loans; a government agency collects tax revenues effectively; then it leads to a confident, positive image and reputation of tax auditors (Robu and Robu, 2015; Taqi, 2013). Also, the tax auditors' acceptance from clients can add up to a new client and enhance revenues from audit service which means a longer life in the audit market. ***Hence, hypothesis 7 is supported***.

Furthermore, the finding also shows that information reliability increase has a significant and positive impact on audit effectiveness (β_{37}= 0.378, $p < 0.01$) after controlling the relevant variables. These results indicate that the potency of tax auditors to provide highly reliable information leads to the effectiveness of an audit. The objective of an audit is assured by the financial statement with an opinion by the auditor about the client's financial statements is fairly presented, on all material issues, in agreement with an applicable financial standard (AICPA, 2012). The reliability of audited financial information has gained importance for users for an accurate business decision more than those who have not. Hence, the potency of tax auditors to provide reliable information under provable audit methods can indicate obvious audit evidence that can convey to users that the financial statements contain no material misstatements and free from fraud, including financial statements that give a true and fair view (Alrshah, 2015). Therefore, reliability is the quality of audited financial statements that build the confidence of the users. For example, tax auditors who provided financial information gave lenders some stability that the company financial statements were free from error and did not contain fraud. Meanwhile, the reliability of an audited financial statement reflects the quality of auditors. Consequently, the confidence of stakeholders

on the reliability of a financial statement leads to the confidence of the verifier. ***Hence, hypothesis 8 is supported***.

In summary, these findings suggest that audit quality affects information benefit enhancement and information reliability increase, while it does not affect audit effectiveness. This result has confirmed that a high level of audit quality that provides useful and reliable information to users for evaluating the position and performance of enterprises with accuracy, is in line with generally accepted principles and tax rules. Meanwhile, audit quality does not provide tax auditors for achieving effectiveness. This is because of the different expectations of clients and regulators about the quality of tax audit that puts a pressure on tax auditors. Thus, a high level of audit quality reduces audit effectiveness. Additionally, both items of information benefit enhancement and information reliability increase affect audit effectiveness. This is because it is a valuable source of information to users, raises the positive perception regarding tax auditors' reputations, and establishes credibility to all stakeholders.

Table 12: Results of the Effects of Audit Quality, Information Benefit Enhancement, and Information Reliability Increase on Audit Effectiveness

Independent Variables	**Dependent Variables**		
	IBE Equation 5 (H6a)	**IRI Equation 6 (H6b)**	**AUE Equation 7 (H6c, H7, H8)**
Audit quality (AUQ)	**.713*** (.040)**	**.800*** (.035)**	.062 (.067)
Information benefit enhancement (IBE)	-	-	**.353*** (.063)**
Information reliability increase (IRI)	-	-	**.378*** (.072)**
Control Variables:			
Age (AGE)	.106 (.086)	-.047 (.075)	.086 (.083)
Professional certification (PRC)	**.285*** (.091)**	.088 (.079)	**.177** (.088)**
Adjusted R^2	**.520**	**.635**	**.556**
Maximum VIF	**1.001**	**1.001**	**3.489**

Note: Beta coefficients with standard errors in parenthesis, *** $p < 0.01$, ** $p < 0.05$

In addition, from the control variables of the regression analysis for analysis, tax auditor age has no significance for information benefit enhancement (β_{30}= 0.106, p > 0.01), information reliability increase (β_{33}= -0.047, p > 0.01), and audit effectiveness (β_{38}= 0.086, p > 0.01). It implies that older tax auditors and young tax auditors are not different in providing beneficial and reliable information. Also, young tax auditors can achieve audit effectiveness the same as older tax auditors. Thus, the ability to provide beneficial and reliable information is not affected by tax auditor age.

Next, professional certification has a significant impact on information benefit enhancement (β_{31}= 0.285, p < 0.01), and audit effectiveness (β_{39}= 0.177, p < 0.05); except, it has no significance for information reliability increase (β_{34}= 0.088, p > 0.01). Professional certifications can serve as an indicator of professionalism and aptitude in tasks. Thus, obtaining certification can be an advantage for tax auditors to show professionalism in whatever they do, such as the ability to prepare beneficial information for users. Therefore, the number of professional certifications enhances more opportunity in terms of career advancement, leads to respect regarding having a high level of skills, and leads to goal achievement in the audit field.

The Effects of Antecedents on Professional Audit Proficiency

Figure 9 illustrates relationships among the antecedent variables, which are audit survival commitment, continuous audit improvement, audit experience diversity, technology development growth, and stakeholder pressure intensity and each dimension of professional audit proficiency based on Hypotheses 9a-9e, 10a-10e, 11a-11e, 12a-12e, and 13a-13e. This research proposes that all antecedent variables are positively related with each dimension of professional audit proficiency. These hypotheses are analyzed by the multiple regression equations in equations 8, 9, 10, 11, and 12 according to chapter 3.

Moreover, the role of moderating effects of sustainable mindset on the relationship between the antecedent variables, which are audit survival commitment, continuous audit improvement, audit experience diversity, technology development growth, and stakeholder pressure intensity; and each dimension of professional audit proficiency is based on Hypotheses 19a-19e, 20a-20e, 21a-21e, 22a-22e, and 23a-23e.This research proposes that the relationship of all hypotheses are positive, based on

the analysis of these hypotheses by the regression equations 17, 18, 19, 20, and 21 according to chapter 3.

Figure 9: The Effects of Antecedents on Professional Audit Proficiency, and a Moderating Role of Sustainable Mindset

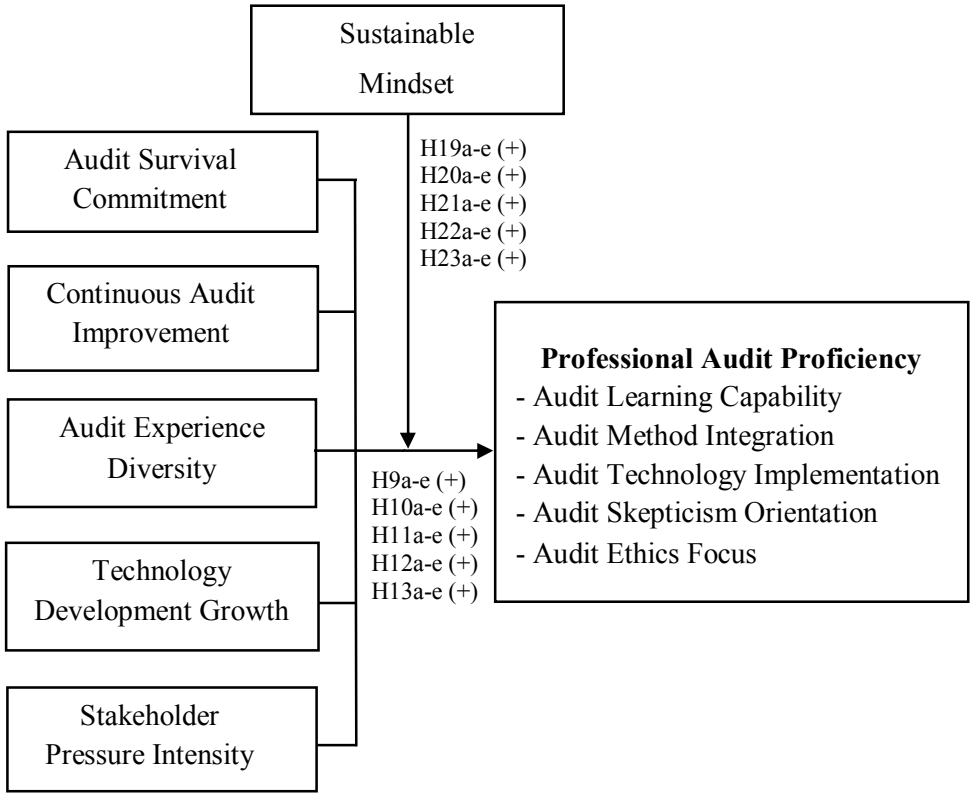


Table 13 discloses the Pearson correlation coefficient and descriptive statistics, including a mean and standard deviation of all variables. The results indicate that the mean scores for all constructs are ranked from 4.00 to 4.29. Moreover, the results indicate that the standard deviation value for all constructs are ranked from 0.53 to 0.54.

Besides, the correlations among antecedent variables and each dimension of professional audit proficiency are also presented in Table 12. Firstly, audit survival commitment is significantly and positively correlated with audit learning capability, audit method integration, audit technology implementation, audit skepticism orientation, and audit ethics focus ($r = 0.658, 0.647, 0.596, 0.687, 0.714$; $p < 0.01$, successively). Secondly, the result shows that continuous audit improvement is significantly and positively correlated to each dimension of professional audit proficiency ($r = 0.563$,

0.527, 0.555, 0.603, 0.603; $p < 0.01$, successively). Thirdly, the result also shows audit experience diversity is significantly and positively correlated with audit learning capability, audit method integration, audit technology implementation, audit skepticism orientation, and audit ethics focus ($r = 0.674, 0.646, 0.639, 0.735, 0.711$; $p < 0.01$, respectively). Next, technology development growth is significantly and positively correlated to audit learning capability, audit method integration, audit technology implementation, audit skepticism orientation, and audit ethics focus ($r = .512, 0.507, 0.669, 0.565, 0.618$; $p < 0.01$, in sequence). Finally, the results demonstrate that stakeholder pressure intensity is significantly and positively correlated to audit learning capability, audit method integration, audit technology implementation, audit skepticism orientation, and audit ethics focus ($r = 0.638, 0.552, 0.558, 0.626, 0.667$; $p < 0.01$, respectively).

Table 13: Descriptive Statistics and Correlation Matrix of the Professional Audit Proficiency and Its Antecedents, and Moderating Role of Sustainable Mindset

Variables	ALC	AMI	ATI	ASO	AEF	ASC	CAI	AED	TDG	SPI	SUM	AGE	PRC
Mean	4.11	4.08	4.09	4.00	4.29	4.02	4.16	4.15	4.15	4.14	4.25	n/a	n/a
S.D.	0.56	0.56	0.57	0.53	0.54	0.53	0.57	0.57	0.56	0.57	0.60	n/a	n/a
AMI	.764***												
ATI	.640***	.675***											
ASO	.685***	.696***	.640***										
AEF	.661***	.594***	.613***	.744***									
ASC	.658***	.647***	.596***	.687***	.714***								
CAI	.563***	.527***	.555***	.603***	.603***	.723***							
AED	.674***	.646***	.639***	.735***	.711***	.755***	.760***						
TDG	.512***	.507***	.669***	.565***	.618***	.607***	.611***	.620***					
SPI	.638***	.552***	.558***	.626***	.667***	.663***	.680***	.665***	.693***				
SUM	.578***	.536***	.526***	.613***	.741***	.745***	.651***	.700***	.625***	.697***			
AGE	.019	.021	.175***	.061	.047	.047	.007	.034	.085	.043	.054		
PRC	.084	.049	.097	.044	.005	-.004	.027	.021	.058	.032	-.055	-.021	-

Note: *** $p < 0.01$

These results show that overall antecedents, which are audit survival commitment, continuous audit improvement, audit experience diversity, technology development growth, and stakeholder pressure intensity; have a certain significance to each dimension of professional audit proficiency. The level of a tax auditor's

professional audit proficiency is high if they are driven by a high level of personal and environmental factors.

Additionally, sustainable mindset, as a moderator, is significantly and positively correlated with audit survival commitment, continuous audit improvement, audit experience diversity, technology development growth, and stakeholder pressure intensity ($r = 0.745, 0.651, 0.700, 0.625, 0.697$; $p < 0.05$, respectively); and audit learning capability, audit method integration, audit technology implementation, audit skepticism orientation, and audit ethics focus ($r = 0.578, 0.536, 0.526, 0.613, 0.741$; $p < 0.05$, sequentially). Likewise, the results in equations 8, 9, 10, 11, and 12 illustrate that the maximum VIF is 3.155 (shown in Table 14). Thus, the VIF value is well below the cut-off value of 10. There are no significant multicollinearity problems confronted. As well, the maximum VIF in equations 17, 18, 19, 20, and 21 is 5.304. The VIF value is well below the cut-off value of 10 (Hair et al., 2010). Thus, the multicollinearity problems are also not of concern for this analysis.

First, as shown in Table 14, the result shows that audit survival commitment has a significant, positive influence on all dimensions of professional audit proficiency consisting of audit learning capability ($\beta_{40}= 0.278$, $p < 0.01$), audit method integration ($\beta_{47}= 0.344$, $p < 0.01$), audit technology implementation ($\beta_{54}= 0.137$, $p < 0.05$), audit skepticism orientation ($\beta_{61}= 0.252$, $p < 0.01$), and audit ethics focus ($\beta_{68}= 0.316$, $p < 0.01$) after controlling the relevant variables. The empirical results verify the establishment of the study hypotheses. This result shows that audit survival commitment is a key factor stimulating tax auditors' professional proficiency that uses knowledge, skills, and attitudes to provide a high quality of audit outcomes. This implies that tax auditors who have audit survival commitment are more likely to spend more effort in creating value for stakeholders, working hard to achieve their objectives, spending more time on developing knowledge and skills, and avoiding the use of dysfunctional audit behaviors (Mela, Zarefar, and Andreas, 2016; Ortegren, Downen, and Kim, 2016; Paino, Thani, and Si, 2012). This is because tax auditors who have high audit survival commitments desire to stay with the profession. Thus, they spend more time on developing knowledge and skills, view audit proficiency as a key intangible asset to produce and maintain competitive advantage, and create superior audit outcomes.

Furthermore, tax auditors who are committed to surviving in a career are likely to follow rules more strictly that promote their goals more strongly and intend to avoid use of dysfunctional audit behaviors which negatively affect the value of audit service provided to clients (Ortegren, Downen, and Kim, 2016). When faced with the possibility of having to exert extra effort in work to achieve its goals, they consent. Besides, tax auditors with high intention to survive in the profession reflect a positive attitude toward their tasks, and employ less unethical tactics to achieve their goals (Paino, Thani, and Si, 2012). ***Therefore, hypotheses 9a, 9b, 9c, 9d, and 9e are supported.***

Second, the result shows that continuous audit improvement has no significance for all dimensions of professional audit proficiency consisting of audit learning capability (β_{41}= -0.097, p > 0.10), audit method integration (β_{48}= -0.111, p > 0.10), audit technology implementation (β_{55}= -0.011, p > 0.10), audit skepticism orientation (β_{62}= -0.071, p > 0.10), and audit ethics focus (β_{69}= -0.101, p > 0.10). These results may be generated by four possible reasons as follows. Firstly, the regulators enforce tax auditors to attend continuous professional development only twelve hours per year, and it is seen as a basic requirement of being a professional in the field (Revenue Department, 2017). This means that continuous audit improvement is only the minimum requirement of tax auditors for education, training, and continuing education to provide guidance on education and development of capabilities for an audit professional. Hence, a tax auditor does not concentrate on knowledge obtained from seminar programs, but attends them to reach the requirements of the regulator and protect the tax auditor license (Khampichit and Ussahawanitchakit, 2011). Secondly, the regulators' requirements do not include the course that is relevant to individual practices, making the information gained to not apply to practice (Lysaght and Altschuld, 2000). Therefore, the continuous training and development for tax auditors do not enhance their proficiency as well. Thirdly, the vital barrier to attending to professional education is the additional cost involved in participating in continuing professional education of tax auditors. Most of the courses have high fees, making tax auditors lose their money in attending. Additionally, tax auditors take responsibility for assuring enterprises' statements with few transactions that are not complex. Hence, extra courses over the basic requirements are not necessary. Finally, most of the seminar

programs are formal systems, which are often communicated through a one-way communication. One-way communication transmits information from instructors to learners. Sometimes one-way communication makes transmitted information not clear for the understanding of learners in education courses. Therefore, one-way communication may be not effective communication and does not add to the knowledge base of learners. While one-way communication can be useful, two-way communication can create much deeper knowledge, understanding matters, and better add to the knowledge base for practitioners (Kral, 2010).

From these four reasons above, the results of this research imply that tax auditors may not sufficiently realize the importance of continuous audit improvement. As a result, the ability related to performing is insufficient, particularly on the part of knowledge. Because professional audit knowledge is perfect at the time of graduation or the first certification earned, it slowly decreases or is outdated over time unless the tax auditors seek for or continuously raise their knowledge. Thus, these problems lead to reducing the relationships among continuous audit improvement and each dimension of professional audit proficiency. ***Therefore, hypotheses 10a, 10b, 10c, 10d, and 10e are not supported.***

Third, the result shows that audit experience diversity has a significant, positive influence on all dimensions of professional audit proficiency consisting of audit learning capability (β_{42}= 0.354, $p < 0.01$), audit method integration (β_{49}= 0.349, $p < 0.01$), audit technology implementation (β_{56}= 0.294, $p < 0.05$), audit skepticism orientation (β_{63}= 0.451, $p < 0.01$), and audit ethics focus (β_{70}= 0.312, $p < 0.01$), after controlling the relevant variables. This finding supports the previous research that audit experience diversity is dominant in improving auditors' proficiencies (Halim, Sutrisno, and Achsin, 2014). Auditors' knowledge changes when different experience levels of auditors change (Badara and Saidin, 2013; Knapp and Knapp, 2001). The different kind of experience shows that they know about errors, know more characteristic causes of errors, have a correct knowledge of errors, and therefore are more likely to detect errors. Thus, for tax auditors with more diverse experience, their knowledge structures become well-developed.

Furthermore, previous audit experience about industries, fraud types, unique accounting systems, particular technology implementation, and specific internal

controls apply to affected, determined audit procedures. Tax auditors are imposing audit methods which are based on their prior experience because they possess more insights regarding the auditing processes that can apply to current practice (Wang et al., 2015). In addition, the different kinds of experience enable tax auditors to choose the best way to respond when facing ethical dilemmas and helps to exercise suspicion to consider the information provided by management that is consistent with management's self-interest, or is not consistent with management's self-interest as well as for an accurate judgment of audit tasks (Pflugrath, Bennie, and Chen, 2007; Popova, 2012; Ussahawanitchakit, 2012). Moreover, tax auditors with a variety of auditing experience tend to be skeptical in a better way because it will be easier for them to detect, understand faults accurately, and find the cause of errors which have an impact on audit quality (Syamsuddin et al., 2014). Hence, the different kinds of knowledge and skills that are acquired through different experiences give tax auditors the ability to identify the right red flag, the right methods, the right tools, and the right information that will aid audit performance. Altogether, audit experience diversity improves tax auditors' professional proficiencies. ***Therefore, hypotheses 11a, 11b, 11c, 11d, and 11e are supported.***

Fourth, the finding indicates that technology development growth has a significant, positive influence on audit technology implementation (β_{57}= 0.397, $p < 0.01$) and audit ethics focus (β_{71}= 0.138, $p < 0.01$) after controlling the relevant variables. Rapid technology growth concerns the area of information technology and affects audit tasks. The tax auditors who perform an audit with technologies implementation will perceive and interpret a change of technology as having positive implications for them, and it is presented as a potential gain if they use it in work. Therefore, the growth of technology development pushes tax auditors to develop the capability to more often use new technologies effectively (Ernst and Young, 2015; Permsirivallop, 2016). Meanwhile, tax auditors who are concerned with ethics rules, in part, perform duties in a specific area in which they have knowledge and skills. Thus, they need to learn new audit technologies which develops audit specialization skills when auditing in a specific case. Consequently, technology growth drives tax auditors to perceive an opportunity to develop a diversified approach in their specialization in order to enhance audit performance. Then, the increasing development of technology makes auditors improve their individual behaviors to gain greater excellence in audit

proficiency (Musig and Ussahawanitchakit, 2011). ***Therefore, hypotheses 12c and 12e are supported.***

Nevertheless, the finding also shows that technology development growth does not impact audit learning capability (β_{43}= -0.031, p > 0.10), audit method integration (β_{50}= 0.064, p > 0.10), and audit skepticism orientation (β_{64}= 0.057, p > 0.10). This result shows that the ability of tax auditors to learn, integrate audit methods, and exercise audit skepticism is not influenced by technology development growth. The possible reason is that of the technology background of tax auditors. The technology background is important in understanding new developments and directions, including acceptance and technology selection (Moorthy et al., 2011). Logically, tax auditors do not perceive and accept new technology development easily if they are a technology laggard. Additionally, tax auditors verify a small enterprises' statements with no complexity, with not many transactions, and are not used to accounting technology. Certainly, tax auditors do not become aware of the influence of clients to use technology. Thus, the rapid change in technology may not stimulate tax auditors to change their behaviors such as spending more time to develop knowledge, mix audit steps, and focus on skeptical behaviors. ***Therefore, hypotheses 12a, 12b, and 12d are not supported.***

Lastly, the finding demonstrates that stakeholder pressure intensity has a significant, positive influence on audit learning capability (β_{44}= 0.304, p < 0.01), audit method integration (β_{51}= 0.121, p < 0.10), audit skepticism orientation (β_{65}= 0.165, p < 0.01), and audit ethics focus (β_{72}= 0.215, p < 0.01) after controlling the relevant variables. Stakeholder pressure intensity does not affect audit technology implementation (β_{58}=- 0.005, p > 0.10). These results can explain that the stakeholders' pressure that forced tax auditors to take actions following their needs had an effect on the effectiveness of tax auditors. Then, auditors who are concerned with stakeholders and audit effectiveness will try to create values for these stakeholders by satisfying stakeholders' expectations. Hence, the level of stakeholder pressure has to affect tax auditor behaviors (Ussahawanitchakit, 2012). The stakeholder pressure forces the tax auditor must be in developing knowledge and skills practice in the work. For example, the Federation of Accounting Professions and the Revenue Department have a role in taking disciplinary action that serves a high standard in auditing, such as cancelling the

professional certificate. The regulators release new standards and enforce a small company to apply new accounting standards that indirectly force tax auditors to learn and spend more effort in auditing. Thus, stakeholders add pressure which necessarily makes tax auditors learn about related accounting and auditing knowledge which is important to complete the work.

Generally, stakeholder pressure intensity helps tax auditors to improve the capabilities to integrate similar audit methods, which enable the tax auditors to perform duties effectively within a restrictive time. Thus, completing work as scheduled is important to the tax auditor who worries about stakeholders' expectations. This result is consistent with prior research that client pressure affects auditor judgments by motivating auditors to search for evidence that supports a client's preferred outcome (Hatfield, Jackson, and Vandervelde, 2011). Hence, the high level of expectation of stakeholders is significant to tax auditors that allows one to combine similar audit steps, or link different audit methods, to inspect and collect audit evidence that is sufficient to support auditor judgments, and to release an accurate report. Additionally, the stakeholders demand both a high quality of audit results, and a high level of audit ethics from auditors' practices and activities. If stakeholders expect to see integrity, respect, standards, transparency, and accountability from tax auditors' practices, then tax auditors must change their behavior to be in line with stakeholders' needs under ethics that are controlled strictly by regulators. Thus, the pressure from stakeholders is an important cause for tax auditors to pay more attention to ethical principles when performing audit duties (Ussahawanitchakit, 2012). ***Consequently, hypotheses 13a, 13b, 13d, and 13e are supported***.

Nevertheless, the level of stakeholder pressure does not affect tax auditor's behaviors in terms of using technology in auditing. The possible reason is that tax auditors who have responsibility for small and simple business, with small trade transactions, and who do not use much trendy accounting technology are not anxious about accounting technology in clients' systems (Musig and Ussahawanitchakit, 2011). Therefore, the pressure from a stakeholder does not force tax auditors to use audit technology as well. ***Hence, hypothesis 13c is not supported***.

In summary, these findings suggest that audit survival commitment, audit experience diversity, technology development growth, and stakeholder pressure

intensity are important factors stimulating tax auditors' professional proficiency, except for continuous audit improvement which does not influence each dimension of professional audit proficiency. Especially, audit survival commitment and audit experience diversity are the most important factors which are stimulating tax auditors' professional proficiency. As mentioned before, audit survival commitment is a vital driver of tax auditor behaviors because of auditors who are committed to career stability, spend more time developing knowledge and skills, and expend more effort to build value for stakeholders by responding to demands and satisfying users. Thus, a high intention to remain in the occupation results in high professional audit proficiency. Certainly, audit experience diversity is the vital stimulator that enhances tax auditors' professional audit proficiency. Different kinds of audit experience generate different knowledge and skills that help tax auditors to obtain high audit performance.

Additionally, the control variable of tax auditor age has a significant influence on audit technology implementation (β_{59}= 0.269, $p < 0.01$). Due to this result, tax auditors who are young can select and use audit technology better than the older tax auditors because the younger tax auditor grows with rapid technology change. Thus, they can quickly learn, easily accept new technology, and apply it to work. Conversely, the ability to learn and accept new technology is a major barrier to the older tax auditors, which reduces the ability to use audit technology.

Moreover, tax auditor age has no significant influence on audit learning capability (β_{45}= -0.031, $p > 0.10$), audit method integration (β_{52}= -0.035, $p > 0.10$), audit skepticism orientation (β_{66}= 0.050, $p > 0.10$), and audit ethics focus (β_{73}= 0.001, $p > 0.10$). Thus, the relationships among audit survival commitment, continuous audit improvement, audit experience diversity, technology development growth, and stakeholder pressure intensity and each dimension of professional audit proficiency; namely, audit learning capability, audit method integration, audit skepticism orientation, and audit ethics focus; are not influenced by tax auditor age. This means that tax auditors may focus on learning accounting and auditing issues, regularly develop audit methods, exercise audit skepticism, and show audit ethics in their work. Therefore, different levels of ages of tax auditors do not differ in professional audit proficiency.

Furthermore, professional certification is significantly positive for audit learning capability (β_{46}= 0.162, $p < 0.10$) and audit technology implementation

(β_{60}= 0.160, $p < 0.10$). The above shows that a tax auditor who holds both tax auditor certification and CPA certification can learn from prior work and then apply knowledge to practice. They tend to use appropriate technology in audit tasks than others who possess only a tax auditor certification. Also, professional certification has no significant effect on audit method integration (β_{53}= 0.085, $p > 0.10$), audit skepticism orientation (β_{67}= 0.065, $p > 0.10$), and audit ethics focus (β_{74}= -0.028, $p > 0.10$). This result implies that the ability to determine audit methods, exercise audit skepticism, and show the code of conduct are not affected by the type of professional certificate that tax auditors many possess.

The Role of the Moderating Effect of Sustainable Mindset

As shown in Table 14, the sign of the variable coefficients in equation 17 remains unchanged, p-value is also unchanged, and the adjusted R^2 value slightly increases (0.001) when compared with before intervention (equation 8). Moreover, the sign of variable coefficients (equation 18) remains unchanged, p-value is also unchanged, and the adjusted R^2 value slightly increases (0.002) when compared with before intervention (equation 9). From equation 19, the sign of variable coefficients remains unchanged, p-value is also unchanged, and the adjusted R^2 value slightly increases (0.001) when compared with before intervention (equation 10). In addition, the sign of variable coefficients (equation 20) remains unchanged, p-value is unchanged, and the adjusted R^2 is also unchanged when compared with before intervention (equation 11). Lastly, the sign of variable coefficients (equation 21) remains unchanged, p-value slightly decreases, and the adjusted R^2 value slightly increases (0.041) when compared with before intervention (equation 12).

Table 14: Results of the Effects of Antecedents on Professional Audit Proficiency and a Moderating Role of the Sustainable Mindset

Independent Variables	Dependent Variables									
	ALC Equation 8 (H9a-13a)	**ALC Equation 17 (H19a-23a)**	**AMI Equation 9 (H9b-13b)**	**AMI Equation 18 (H19b-23b)**	**ATI Equation 10 (H9c-13c)**	**ATI Equation 19 (H19c-23c)**	**ASO Equation 11 (H9d-13d)**	**ASO Equation 20 (H19d-23d)**	**AEF Equation 12 (H9e-13e)**	**AEF Equation 21 (H19e-23e)**
Audit survival commitment (ASC)	**.278*** (.066)**	**.277*** (.073)**	**.344*** (.071)**	**.361*** (.077)**	**.137** (.066)**	**.177** (.072)**	**.252*** (.063)**	**.237*** (.069)**	**.316*** (.060)**	**.178*** (.062)**
Continuous audit improvement (CAI)	-.097 (.068)	-.080 (.070)	-.111 (.073)	-.107 (.075)	-.011 (.068)	-.005 (.070)	-.071 (.064)	-.062 (.066)	-.101 (.062)	-.099 (.060)
Audit experience diversity (AED)	**.354*** (.070)**	**.347*** (.072)**	**.349*** (.075)**	**.358*** (.076)**	**.294*** (.070)**	**.289*** (.071)**	**.451*** (.066)**	**.459*** (.068)**	**.312*** (.064)**	**.268*** (.062)**
Technology growth development (TGD)	-.031 (.058)	-.020 (.059)	.064 (.062)	.080 (.063)	**.397*** (.058)**	**.413*** (.059)**	.057 (.055)	.061 (.056)	**.138*** (.053)**	**.089* (.051)**
Stakeholder pressure intensity (SPI)	**.304*** (.063)**	**.259*** (.066)**	**.121* (.067)**	**.123* (.071)**	-.005 (.063)	.009 (.066)	**.165*** (.060)**	**.152** (.063)**	**.215*** (.057)**	**.149** (.057)**
Moderator: Sustainable mindset (SUM)		.007 (.068)		-.026 (.072)		-.065 (.067)		.006 (.064)		**.294*** (.058)**
ASC*SUM (H19a-e)		.113 (.073)		.024 (.078)		.103 (.073)		.006 (.069)		-.010 (.063)
CAI*SUM (H20a-e)		-.012 (.076)		.003 (.080)		.082 (.075)		-.108 (.071)		-.105 (.065)
AED*SUM (H21a-e)		.006 (.078)		.042 (.083)		-.087 (.077)		.098 (.073)		.067 (.067)
TGD*SUM (H22a-e)		-.053 (.057)		.016 (.060)		-.059 (.056)		.055 (.054)		-.065 (.049)
SPI*SUM (H23a-e)		.028 (.061)		.024 (.065)		.010 (.061)		-.076 (.058)		-.001 (.052)
Control Variables: Age (AGE)	-.031 (.085)	-.023 (.086)	-.035 (.090)	-.025 (.091)	**.269*** (.084)**	**.263*** (.086)**	.050 (.080)	.072 (.081)	.001 (.077)	-.009 (.074)
Professional certification (PRC)	**.162* (.089)**	.139 (.092)	.085 (.094)	.029 (.098)	**.160* (.088)**	.149 (.091)	.065 (.083)	.059 (.086)	-.028 (.080)	.070 (.079)
Adjusted R^2	**.540**	**.541**	**.479**	**.481**	**.545**	**.546**	**.591**	**.591**	**.614**	**.655**
Maximum VIF	**3.155**	**5.304**	**3.155**	**5.304**	**3.155**	**5.304**	**3.155**	**5.304**	**3.155**	**5.304**

Note: Beta coefficients with standard errors in parenthesis, *** p < 0.01, ** p < 0.05, * p < 0.10

The result of the role of the moderating effect of sustainable mindset on the antecedents and each dimension of professional audit proficiency relationships are as follows. The results indicate that sustainable mindset does not significantly moderate the relationships among antecedents and all dimensions of professional audit proficiency.

First, sustainable mindset does not significantly moderate the relationships among audit survival commitment and each dimension of professional audit proficiency which consists of audit learning capability (β_{128}= 0.113, p > 0.10), audit method integration (β_{140}= 0.024, p > 0.10), audit technology implementation (β_{152}= 0.103, p > 0.10), audit skepticism orientation (β_{164}= 0.006, p > 0.10), and audit ethics focus (β_{176}= -0.010, p > 0.10). The results suggest that sustainable mindset has no sufficient, potential influence on the tax auditor's awareness of surviving in the audit profession to raise more proficiency to carry on their work. Because tax auditors strongly commit to carry audit tasks for a long time, they tend to pay attention and spend more time to continuously develop their proficiency. This is because they realize both high professional audit proficiency and audit performance make them remain on duty a long time (Mela, Zarefar, and Andreas, 2016; Paino, Thani, and Si, 2012). Thus, this leads to reducing the influence of sustainable mindset that may also have an insignificant effect on tax auditors with high commitment to survive in auditing by proficiently performing duties. ***Consequently, hypotheses 19a, 19b, 19c, 19d, and 19e are not supported.***

Second, the result shows that sustainable mindset does not significantly moderate the relationships among continuous audit improvement and each dimension of professional audit proficiency which consist of audit learning capability (β_{129}= -0.012, p > 0.10), audit method integration (β_{141}= 0.003, p > 0.10), audit technology implementation (β_{153}= 0.082, p > 0.10), audit skepticism orientation (β_{165}= -0.108, p > 0.10), and audit ethics focus (β_{177}= -0.105, p > 0.10). The results suggest that sustainable mindset has no sufficient, potential influence on the improvement of the tax auditor's knowledge and skills to stimulate more audit proficiency. Moreover, the main effects of continuous audit improvement on each dimension of professional audit proficiency are not presented; thus it cannot interpret the results as well. ***Thus, hypotheses 20a, 20b, 20c, 20d, and 20e are not supported.***

Third, the result also shows that sustainable mindset does not significantly moderate the relationships among audit experience diversity and each dimension of professional audit proficiency which consist of audit learning capability (β_{130}= 0.006, p > 0.10), audit method integration (β_{142}= 0.042, p > 0.10), audit technology implementation (β_{154}= -0.087, p > 0.10), audit skepticism orientation (β_{166}= 0.098, p > 0.10), and audit ethics focus (β_{178}= 0.067, p > 0.10). The results suggest that sustainable mindset has no sufficient, potential influence on the benefit of the wide range of audit experience to improve professional audit proficiency. The possible reason is that one can explain that tax auditors with diverse experience can turn their prior experience into valuable knowledge; then, it causes tax auditors to have a deep understanding of the industry, or firm operating characteristics and operational risks; which helps to better identify the financial risks of the industry's clients. Additionally, different kinds of experience can improve the ability to find out errors, show a code of ethics, represent skepticism to improve judgments, help set more appropriate audit plans, implement appropriate auditing procedures, and ultimately produce reasonable audit opinions (Chi et al., 2016; Pflugrath, Bennie, and Chen, 2007; Wang et al., 2015). Likewise, a different kind of experience stimulates good behaviors of tax auditors to provide high-quality audit performance; thus, this leads to reducing the influence of sustainable mindset that may insignificantly affect tax auditors with diverse experience. ***Consequently, hypotheses 21a, 21b, 21c, 21d, and 21e are not supported.***

Fourth, the result also demonstrates that sustainable mindset does not significantly moderate the relationships among technology development growth and each dimension of professional audit proficiency which consist of audit learning capability (β_{131}= -0.053, p > 0.10), audit method integration (β_{143}= 0.016, p > 0.10), audit technology implementation (β_{155}= -0.059, p > 0.10), audit skepticism orientation (β_{167}= 0.055, p > 0.10), and audit ethics focus (β_{179}= -0.065, p > 0.10). The growth of both accounting and auditing technology development forces tax auditors to learn and seek appropriate technologies in their work (Ernst and Young, 2015; Permsirivallop, 2016). The tax auditors who perceive and interpret a change of technology as having positive implications for them, and presenting a potential gain, see technology growth as a chance to develop a diversified approach and specialization to enhance audit performance. Tax auditors who are realizing the chance that comes with new

technologies, pay attention to learning and choose technology for building their confidence so that they obtain suitable technology for work. This leads to reducing the influence of sustainable mindset that may insignificantly affect tax auditors who perceive benefit from the technological change. ***Hence, hypotheses 22a, 22b, 22c, 22d, and 22e are not supported.***

Finally, the result illustrates that sustainable mindset does not significantly moderate the relationships among stakeholder pressure intensity and each dimension of professional audit proficiency which consist of audit learning capability (β_{132}= 0.028, p > 0.10), audit method integration (β_{144}= 0.024, p > 0.10), audit technology implementation (β_{156}= 0.010, p > 0.10), audit skepticism orientation (β_{168}= -0.076, p > 0.10), and audit ethics focus (β_{180}= -0.001, p > 0.10). The prior study explains that pressure intensity is the degree of force and power used by stakeholders to demand certain actions from the auditor (Gonzalez-Benito and Gonzalez-Benito, 2010). Due to this result, a possible reason can explain that tax auditors who are realizing stakeholders' expectations of trends perform audit duties with a high level of proficiency to provide a best audit performance. Prior research indicates that, when tax auditors were pressured by their managers to achieve targets and work through a backlog of cases, they changed their behavior styles to bargaining, such as eliminating insignificant audit issues to reduce taxpayers' taxes (Muhammad, 2013). Thus, the pressure from stakeholders can change tax auditors' behaviors. Especially, the high level of stakeholders' pressure, forcing tax auditors to do their job as a proficient person who provides audit performance consistent with stakeholders' needs leads to reducing an influence of sustainable mindset. For such a reason, this may reduce a moderating effect of sustainable mindset on the relationships among stakeholder pressure intensity and each dimension of professional audit proficiency. ***Therefore, hypotheses 23a, 23b, 23c, 23d, and 23e are not supported.***

Based on the aforementioned result, sustainable mindset does not moderate all relationships. Under the present competitive environment of audit professionals, tax auditors realize the importance of quality services; then, this leads to performing with proficiency. Commonly, the tax auditor's sustainable mindset is subjective in nature and can be changeable over time. The sustainable mindset can help tax auditors to be accomplished, but the different contexts of mindsets may be insignificant. Thus, in

some contexts, the characteristics of mindsets that are subjective and changeable may not influence tax auditors' behaviors; but it does not mean that it never does so. In fact, tax auditors are under the control of the Revenue Department. Thus, the persistence of the tax audit profession is longest as long as the Revenue Department exists. Therefore, sustainable mindset does not influence tax auditors' behaviors.

In terms of control variables, the finding shows that tax auditor age has a significant impact on the moderating effect of sustainable mindset, and on the relationship between antecedents of professional audit proficiency and audit technology implementation (β_{157}= 0.263, $p < 0.01$). Moreover, the finding also shows that tax auditor age has no significance for the moderating effect of sustainable mindset on the relationship between antecedents of professional audit proficiency and audit learning capability (β_{133}= -0.023, $p > 0.10$), audit method integration (β_{145}= -0.025, $p > 0.10$), audit skepticism orientation (β_{169}= 0.072, $p > 0.10$), and audit ethics focus (β_{181}= -0.009, $p > 0.10$). In addition, the finding indicates that professional certification has no significance for the moderating effect of sustainable mindset on the relationship between antecedents of professional audit proficiency and audit learning capability (β_{134}= 0.139, $p > 0.10$), audit method integration (β_{146}= 0.029, $p > 0.10$), audit technology implementation (β_{158}= 0.149, $p > 0.10$), audit skepticism orientation (β_{170}= 0.059, $p > 0.10$), and audit ethics focus (β_{182}= 0.070, $p > 0.10$).

Additional Analysis

Beside the aforementioned results, this research also examines the relationship between professional audit proficiency, separated into three dimensions based on the characteristics in section two of IES8; namely, professional knowledge (PKN), professional skills (PSK), and professional attitudes (PAT); and audit outcomes.

As show in Table 15, the result shows that professional knowledge has a significant, positive effect on audit quality (β= 0.147, $p < 0.05$) and information reliability increase (β= 0.100, $p < 0.10$) after controlling the relevant variables. Additionally, professional skills have a significant, positive effect on information benefit enhancement (β= 0.315, $p < 0.01$), information reliability increase (β= 0.183, $p < 0.01$), and audit effectiveness (β= 0.345, $p < 0.01$) after controlling the relevant

variables. Moreover, professional attitudes have a significant positive effect on all audit outcomes composed of audit quality (β= 0.585, p < 0.01), information benefit enhancement (β= 0.375, p < 0.01), information reliability increase (β= 0.569, p < 0.01), and audit effectiveness (β= 0.324, p < 0.01) after controlling the relevant variables. Certainly, the professional attitude is most important for tax auditors who must realize and apply it to provide best audit performance. This result is consistent with previous research that professional attitudes and behaviors are perceived to be more significant determinants of overall job performance by high performing auditors (McKnight and Wright, 2011; Siriwardane, Hu, and Low, 2014). Next, professional skill is vital to tax auditors for building users' confidence with beneficial and reliable information which leads to achieving audit effectiveness. Besides, professional knowledge is also necessary for performing audit duties as well (Susanty et al., 2015). Altogether, professional audit proficiency components, namely, professional attitudes, professional skills, and professional knowledge are required by tax auditors to carry out their responsibilities to achieve quality of performance audit results (Samuel and Afiah, 2013). Hence, to obtain good audit outcomes, tax auditors should have sufficient proficiency to be able to create audit reports that are accurate, useful and credible; and meet the need of users.

In terms of the moderating effect of knowledge management competency, the result shows that knowledge management is likely to be a moderator of the relationships between professional knowledge and audit quality (β= 0.145, p < 0.05). In addition, knowledge management is not likely to be a moderator of the relationships among professional knowledge and information benefit enhancement (β= -0.067, p > 0.10) and information reliability increase (β= -0.043, p > 0.10); but it has a negative moderating effect on audit effectiveness (β= -0.113, p < 0.10), respectively. Furthermore, knowledge management is also not likely to be a moderator of the relationships among professional skill and all audit outcomes, namely, audit quality (β= -0.015, p > 0.10), information benefit enhancement (β= -0.004, p > 0.10), information reliability increase (β= 0.065, p > 0.10), and audit effectiveness (β= -0.027, p > 0.10), respectively. Lastly, knowledge management is also not likely to be a moderator of the relationships among professional attitude and all audit outcomes, namely, audit quality (β= -0.047, p > 0.10),

information benefit enhancement (β= 0.095, p > 0.10), information reliability increase (β= 0.004, p > 0.10), and audit effectiveness (β= 0.001, p > 0.10), respectively.

Table 15: The Results for Additional Analysis of Effects of Professional Audit Proficiency on Its Audit Outcomes and Moderating Effect of Knowledge Management Competency

Independent Variables	**Dependent Variables**							
	AUQ	**AUQ**	**IBE**	**IBE**	**IRI**	**IRI**	**AUE**	**AUE**
PKN	**0.147**** **(0.062)**	**0.163**** **(0.063)**	0.076 (0.069)	0.040 (0.068)	**0.100*** **(0.060)**	0.068 (0.061)	0.104 (0.068)	0.057 (0.067)
PSK	0.100 (0.064)	0.046 (0.067)	**0.315***** **(0.071)**	**0.241***** **(0.073)**	**0.183***** **(0.062)**	**0.162**** **(0.065)**	**0.345***** **(0.070)**	**0.278***** **(0.071)**
PAT	**0.585**** **(0.059)**	**0.573**** **(0.062)**	**0.375***** **(0.065)**	**0.299***** **(0.066)**	**0.569***** **(0.057)**	**0.516***** **(0.059)**	**0.324***** **(0.065)**	**0.233***** **(0.065)**
KMC		0.066 (0.049)		**0.267***** **(0.052)**		**0.142***** **(0.047)**		**0.297***** **(0.051)**
PKN*KMC		**0.145**** **(0.054)**		-0.067 (0.059)		-0.043 (0.053)		**-0.113*** **(0.058)**
PSK*KMC		-0.015 (0.058)		-0.004 (0.063)		0.065 (0.056)		-0.027 (0.061)
PAT*KMC		-0.047 (0.062)		0.095 (0.066)		0.004 (0.059)		0.101 (0.065)
AGE	-0.066 (0.080)	-0.056 (0.079)	0.008 (0.088)	0.027 (0.085)	**-0.136*** **(0.077)**	-0.117 (0.076)	0.002 (0.087)	0.013 (0.084)
PRC	-0.038 (0.083)	-0.057 (0.083)	**0.194**** **(0.092)**	**0.149*** **(0.090)**	0.036 (0.080)	0.017 (0.080)	**0.226**** **(0.091)**	**0.189**** **(0.088)**
Adjusted R^2	**0.596**	**0.608**	**0.506**	**0.545**	**0.625**	**0.635**	**0.515**	**0.562**
Maximum VIF	**3.022**	**3.614**	**3.022**	**3.614**	**3.022**	**3.614**	**3.022**	**3.614**

Note: Beta coefficients with standard errors in parenthesis, *** p < 0.01, ** p < 0.05, * p < 0.10

Table 16: The results for Additional Analysis of Effects of antecedents on Professional Audit Proficiency and Moderating Effect of Sustainable Mindset

Independent Variables	**Dependent Variables**					
	PKN	**PKN**	**PSK**	**PSK**	**PAT**	**PAT**
ASC	**0.279*** (0.067)**	**0.278*** (0.073)**	**0.267*** (0.063)**	**0.300*** (0.069)**	**0.310*** (0.055)**	**0.222*** (0.058)**
CAI	-0.097 (0.068)	-0.079 (0.070)	-0.067 (0.064)	-0.061 (0.066)	-0.096 (0.056)	-0.089 (0.056)
AED	**0.353*** (0.070)**	**0.347*** (0.072)**	**0.349*** (0.066)**	**0.350*** (0.068)**	**0.406*** (0.058)**	**0.385*** (0.057)**
TDG	-0.031 (0.058)	-0.019 (0.060)	**0.249*** (0.055)**	**0.268*** (0.056)**	**0.108** (0.048)**	**0.082* (0.048)**
SPI	**0.304*** (0.063)**	**0.296*** (0.066)**	0.066 (0.060)	0.074 (0.063)	**0.207*** (0.052)**	**0.162*** (0.053)**
SUM		0.007 (0.068)		-0.050 (0.064)		**0.172*** (0.054)**
ASC*SUM		0.114 (0.073)		0.075 (0.069)		-0.002 (0.059)
CAI*SUM		-0.013 (0.075)		0.051 (0.071)		**-0.116* (0.060)**
AED*SUM		0.006 (0.078)		-0.029 (0.073)		0.089 (0.062)
TDG*SUM		-0.054 (0.057)		-0.021 (0.054)		-0.011 (0.046)
SPI*SUM		0.028 (0.061)		0.015 (0.058)		-0.039 (0.049)
AGE	-0.030 (0.085)	-0.023 (0.086)	0.128 (0.080)	0.132 (0.081)	0.026 (0.069)	0.031 (0.069)
PRC	**0.162* (0.089)**	0.139 (0.092)	0.132 (0.084)	0.094 (0.087)	0.017 (0.073)	0.071 (0.073)
Adjusted R^2	**0.540**	**0.542**	**0.589**	**0.591**	**0.691**	**0.707**
Maximum VIF	**3.160**	**5.299**	**3.160**	**5.299**	**3.160**	**5.299**

Note: Beta coefficients with standard errors in parenthesis, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Moreover, this research also examines the relationships among professional audit proficiency (professional knowledge, professional skill, and professional attitude)

and its antecedents. As show in Table 16, this results reveal that audit survival commitment has a significant, positive effect on professional knowledge (β= 0.279, $p < 0.01$), professional skill (β= 0.267, $p < 0.01$), and professional attitude (β= 0.310, $p < 0.01$) after controlling the relevant variables. Continuous audit improvement has an insignificant effect on professional knowledge (β= -0.097, $p > 0.10$), professional skill (β= -0.067, $p > 0.10$), and professional attitude (β= -0.096, $p > 0.10$). Also, audit experience diversity has a significant, positive effect on professional knowledge (β= 0.353, $p < 0.01$), professional skill (β= 0.349, $p < 0.01$), and professional attitude (β= 0.406, $p < 0.01$), after controlling the relevant variables. Furthermore, technology development growth has a significant, positive effect on professional skill (β= 0.249, $p < 0.01$), and professional attitude (β= 0.108, $p < 0.05$), after controlling the relevant variables. Moreover, stakeholder pressure intensity has a significant, positive effect on professional knowledge (β= 0. 0.304, $p < 0.01$), and professional attitude (β= 0.207, $p < 0.01$), after controlling the relevant variables. Consistent with that mentioned before, audit survival commitment and audit experience diversity are also key factors which stimulate tax auditors' proficiency (Halim, Sutrisno, and Achsin, 2014; Ortegren, Downen, and Kim, 2016; Paino, Thani, and Si, 2012). Additionally, technology development growth is a major factor stimulates tax auditors' behavior with professional skills and attitudes (Ernst and Young, 2015). Furthermore, stakeholder pressure intensity is also a vital factor to drive tax auditors in performing duties with professional knowledge and attitude.

Regarding the role of sustainable mindset as a moderator, the results demonstrate that sustainable mindset is not likely to moderate the relationships among professional audit proficiency and all antecedents. In detail, first, sustainable mindset is not likely to moderate the relationships among audit survival commitment and professional knowledge (β= 0.114, $p > 0.10$), professional skill (β= 0.075, $p > 0.10$), and professional attitude (β= -0.002, $p > 0.10$). Second, sustainable mindset is not likely to moderate the relationships among continuous audit improvement and professional knowledge (β= -0.013, $p > 0.10$) and professional skill (β= 0.051, $p > 0.10$). Third, sustainable mindset is not likely to moderate the relationships among audit experience diversity and professional knowledge (β= 0.006, $p > 0.10$), professional skill (β= -0.029, $p > 0.10$), and professional attitude (β= 0.089, $p > 0.10$). Fourth, sustainable mindset is

not likely to moderate the relationships among technology development growth professional knowledge (β= -0.054, p > 0.10), professional skill (β= -0.021, p > 0.10), and professional attitude (β= -0.011, p > 0.10). Lastly, sustainable mindset is not likely to moderate the relationships among stakeholder pressure intensity and professional knowledge (β= 0.028, p > 0.10), professional skill (β= 0.015, p > 0.10), and professional attitude (β= -0.039, p > 0.10). However, the result shows that sustainable mindset has a negative moderating effect on the relationship between continuous audit improvement and professional attitude (β= -0.116, p < 0.10).

Summary

This chapter presents the results of this research. The first part shows respondents' characteristics and the demographic information of tax auditors. Additionally, hypotheses testing and discussion are provided. The results reveal that the dimensions of professional audit proficiency (namely, audit learning capability, audit method integration, audit technology implementation, and audit ethics focus) have a partially positive effect on audit quality, information benefit enhancement, information reliability increase, and audit effectiveness. This is except for audit skepticism orientation, which has a positive effect on audit quality, information benefit enhancement, information reliability increase, and audit effectiveness. In addition, knowledge management competency moderates the relationships between audit learning capability and audit quality; the relationships between audit technology implementation and information reliability increase; and the relationships between audit ethics focus and information benefit enhancement. Furthermore, audit quality has a partially positive effect on information benefit enhancement and information reliability increase. Both information benefit enhancement and information reliability increase have a positive effect on audit effectiveness.

In terms of antecedents, the results reveal that both audit survival commitment and audit experience diversity have a positive influence on all dimensions of professional audit proficiency. Technology growth development and stakeholder pressure intensity have a partially, positive influence on dimensions of professional audit proficiency. In conclusion, Hypotheses 4, 7, 8, 9, and 11 are supported; Hypotheses 1, 2, 3, 5, 6, 12, 13,

14, 16, and 18 are partially supported; and Hypotheses 10, 15, 17, 19, 20, 21, 22, and 23 are not supported. Finally, the summary of the results of hypotheses testing is presented in Table 17.

Table 17: The Summary of Hypothesized Relationships

Hypothesis	Description of Hypothesized Relationships	Results
H1a	Audit learning capability is positively related to audit quality	Supported
H1b	Audit learning capability is positively related to information benefit enhancement	Not Supported
H1c	Audit learning capability is positively related to information reliability increase	Not Supported
H1d	Audit learning capability is positively related to audit effectiveness	Supported
H2a	Audit method integration is positively related to audit quality	Supported
H2b	Audit method integration is positively related to information benefit enhancement	Not Supported
H2c	Audit method integration is positively related to information reliability increase	Supported
H2d	Audit method integration is positively related to audit effectiveness	Not Supported
H3a	Audit technology implementation is positively related to audit quality	Not Supported
H3b	Audit technology implementation is positively related to information benefit enhancement	Supported
H3c	Audit technology implementation is positively related to information reliability increase	Not Supported
H3d	Audit technology implementation is positively related to audit effectiveness	Supported

Table 17: The Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships	Results
H4a	Audit skepticism orientation is positively related to audit quality	Supported
H4b	Audit skepticism orientation is positively related to information benefit enhancement	Supported
H4c	Audit skepticism orientation is positively related to information reliability increase	Supported
H4d	Audit skepticism orientation is positively related to audit effectiveness	Supported
H5a	Audit ethics focus is positively related to audit quality	Supported
H5b	Audit ethics focus is positively related to information benefit enhancement	Not Supported
H5c	Audit ethics focus is positively related to information reliability increase	Supported
H5d	Audit ethics focus is positively related to audit effectiveness	Not Supported
H6a	Audit quality is positively related to information benefit enhancement	Supported
H6b	Audit quality is positively related to information reliability increase	Supported
H6c	Audit quality is positively related to audit effectiveness	Not Supported
H7	Information benefit enhancement is positively related to audit effectiveness	Supported
H8	Information reliability increase is positively related to audit effectiveness	Supported
H9a	Audit survival commitment is positively related to audit learning capability	Supported

Table 17: The Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships	Results
H9b	Audit survival commitment is positively related to audit method integration	Supported
H9c	Audit survival commitment is positively related to audit technology implementation	Supported
H9d	Audit survival commitment is positively related to audit skepticism orientation	Supported
H9e	Audit survival commitment is positively related to audit ethics focus	Supported
H10a	Continuous audit improvement is positively related to audit learning capability	Not Supported
H10b	Continuous audit improvement is positively related to audit method integration	Not Supported
H10c	Continuous audit improvement is positively related to audit technology implementation	Not Supported
H10d	Continuous audit improvement is positively related to audit skepticism orientation	Not Supported
H10e	Continuous audit improvement is positively related to audit ethics focus	Not Supported
H11a	Audit experience diversity is positively related to audit learning capability	Supported
H11b	Audit experience diversity is positively related to audit method integration	Supported
H11c	Audit experience diversity is positively related to audit technology implementation	Supported
H11d	Audit experience diversity is positively related to audit skepticism orientation	Supported

Table 17: The Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships	Results
H11e	Audit experience diversity is positively related to audit ethics focus	Supported
H12a	Technology development growth is positively related to audit learning capability	Not Supported
H12b	Technology development growth is positively related to audit method integration	Not Supported
H12c	Technology development growth is positively related to audit technology implementation	Supported
H12d	Technology development growth is positively related to audit skepticism orientation	Not Supported
H12e	Technology development growth is positively related to audit ethics focus	Supported
H13a	Stakeholder pressure intensity is positively related to audit learning capability	Supported
H13b	Stakeholder pressure intensity is positively related to audit method integration	Supported
H13c	Stakeholder pressure intensity is positively related to audit technology implementation	Not Supported
H13d	Stakeholder pressure intensity is positively related to audit skepticism orientation	Supported
H13e	Stakeholder pressure intensity is positively related to audit ethics focus	Supported
H14a	Knowledge management competency positively moderates the relationship between audit learning capability and audit quality	Supported
H14b	Knowledge management competency positively moderates the relationship between audit learning capability and information benefit enhancement	Not Supported

Table 17: The Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships	Results
H14c	Knowledge management competency positively moderates the relationship between audit learning capability and information reliability increase	Not Supported
H14d	Knowledge management competency positively moderates the relationship between audit learning capability and audit effectiveness	Not Supported
H15a	Knowledge management competency positively moderates the relationship between audit method integration and audit quality	Not Supported
H15b	Knowledge management competency positively moderates the relationship between audit method integration and information benefit enhancement	Not Supported
H15c	Knowledge management competency positively moderates the relationship between audit method integration and information reliability increase	Not Supported
H15d	Knowledge management competency positively moderates the relationship between audit method integration and audit effectiveness	Not Supported
H16a	Knowledge management competency positively moderates the relationship between audit technology implementation and audit quality	Not Supported
H16b	Knowledge management competency positively moderates the relationship between audit technology implementation and information benefit enhancement	Not Supported
H16c	Knowledge management competency positively moderates the relationship between audit technology implementation and information reliability increase	Supported

Table 17: The Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships	Results
H16d	Knowledge management competency positively moderates the relationship between audit technology implementation and audit effectiveness	Not Supported
H17a	Knowledge management competency positively moderates the relationship between audit skepticism orientation and audit quality	Not Supported
H17b	Knowledge management competency positively moderates the relationship between audit skepticism orientation and information benefit enhancement	Not Supported
H17c	Knowledge management competency positively moderates the relationship between audit skepticism orientation and information reliability increase	Not Supported
H17d	Knowledge management competency positively moderates the relationship between audit skepticism orientation and audit effectiveness	Not Supported
H18a	Knowledge management competency positively moderates the relationship between audit ethics focus and audit quality	Not Supported
H18b	Knowledge management competency positively moderates the relationship between audit ethics focus and information benefit enhancement	Supported
H18c	Knowledge management competency positively moderates the relationship between audit ethics focus and information reliability increase	Not Supported
H18d	Knowledge management competency positively moderates the relationship between audit ethics focus and audit effectiveness	Not Supported

Table 17: The Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships	Results
H19a	Sustainable mindset positively moderates the relationship between audit survival commitment and audit learning capability	Not Supported
H19b	Sustainable mindset positively moderates the relationship between audit survival commitment and audit method integration	Not Supported
H19c	Sustainable mindset positively moderates the relationship between audit survival commitment and audit technology implementation	Not Supported
H19d	Sustainable mindset positively moderates the relationship between audit survival commitment and audit skepticism orientation	Not Supported
H19e	Sustainable mindset positively moderates the relationship between audit survival commitment and audit ethics focus	Not Supported
H20a	Sustainable mindset positively moderates the relationship between continuous audit improvement and audit learning capability	Not Supported
H20b	Sustainable mindset positively moderates the relationship between continuous audit improvement and audit method integration	Not Supported
H20c	Sustainable mindset positively moderates the relationship between continuous audit improvement and audit technology implementation	Not Supported
H20d	Sustainable mindset positively moderates the relationship between continuous audit improvement and audit skepticism orientation	Not Supported

Table 17: The Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships	Results
H20c	Sustainable mindset positively moderates the relationship between continuous audit improvement and audit technology implementation	Not Supported
H20d	Sustainable mindset positively moderates the relationship between continuous audit improvement and audit skepticism orientation	Not Supported
H20e	Sustainable mindset positively moderates the relationship between continuous audit improvement and audit ethics focus	Not Supported
H21a	Sustainable mindset positively moderates the relationship between audit experience diversity and audit learning capability	Not Supported
H21b	Sustainable mindset positively moderates the relationship between audit experience diversity and audit method integration	Not Supported
H21c	Sustainable mindset positively moderates the relationship between audit experience diversity and audit technology implementation	Not Supported
H21d	Sustainable mindset positively moderates the relationship between audit experience diversity and audit skepticism orientation	Not Supported
H21e	Sustainable mindset positively moderates the relationship between audit experience diversity and audit ethics focus	Not Supported
H22a	Sustainable mindset positively moderates the relationship between technology development growth and audit learning capability	Not Supported
H22b	Sustainable mindset positively moderates the relationship between technology development growth and audit method integration	Not Supported

Table 17: The Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships	Results
H22c	Sustainable mindset positively moderates the relationship between technology development growth and audit technology implementation	Not Supported
H22d	Sustainable mindset positively moderates the relationship between technology development growth and audit skepticism orientation	Not Supported
H22e	Sustainable mindset positively moderates the relationship between technology development growth and audit ethics focus	Not Supported
H23a	Sustainable mindset positively moderates the relationship between stakeholder pressure intensity and audit learning capability	Not Supported
H23b	Sustainable mindset positively moderates the relationship between stakeholder pressure intensity and audit method integration	Not Supported
H23c	Sustainable mindset positively moderates the relationship between stakeholder pressure intensity and audit technology implementation	Not Supported
H23d	Sustainable mindset positively moderates the relationship between stakeholder pressure intensity and audit skepticism orientation	Not Supported
H23e	Sustainable mindset positively moderates the relationship between stakeholder pressure intensity and audit ethics focus	Not Supported

CHAPTER V

CONCLUSION

This research focuses on inspecting the relationships between professional audit proficiency (audit learning capability, audit method integration, audit technology implementation, audit skepticism orientation, and audit ethics focus) and audit outcomes (audit quality, information benefit enhancement, information reliability increases, and audit effectiveness) of tax auditors in Thailand. Additionally, knowledge management competency is proposed as a moderator between the relationship of professional audit proficiency and its consequences. Furthermore, the sustainable mindset is proposed as a moderator between the relationships of antecedents (audit survival commitment, continuous audit improvement, audit experience diversity, technology development growth, and stakeholder pressure intensity), and each dimension of professional audit proficiency.

Research questions are as follows: (1) How does each dimension of professional audit proficiency affect audit quality, information benefit enhancement, information reliability increase, and audit effectiveness? (2) How does audit quality have an influence on information benefit enhancement, information reliability increase, and audit effectiveness? (3) How do information benefit enhancement and information reliability increase have an influence on audit effectiveness? (4) How do audit survival commitment, audit experiences diversity, continuous audit improvement, technology development growth, and stakeholder pressure intensity have an influence on each dimension of professional audit proficiency? (5) How does knowledge management competency moderate the effect of each dimension of professional audit proficiency on audit quality, information benefit enhancement, information reliability increase, and audit effectiveness? (6) How does sustainable mindset moderate the influence of audit survival commitment, audit experiences diversity, continuous audit improvement, technology development growth, and stakeholder pressure on each dimension of professional audit proficiency?

Two theoretical perspectives are integrated to support how professional audit proficiency affects audit effectiveness, including the capability theory and social cognitive theory. The capability theory explains why auditors should focus on

professional audit proficiency. The capability approach is used to explain resource-based approaches. Professional audit proficiency is an auditor's resource, which is to consider professional audit proficiency as capabilities of doing things that auditors have reason to value. Auditor's resources are comprised of knowledge, skills, and professional attitudes needed to perform audit duties. Thus, auditors should use their resources to reach what they value, such as audit effectiveness. Social cognitive theory explains that professional audit proficiency is the result of the interrelationships between personal factors and environmental factors that have influenced auditors to choose and produce a set of actions likely to produce desired audit effectiveness. Both theories can be integrated together because the auditors' behavior is affected by personal and environmental factors, and then auditors' behaviors have an effect on audit effectiveness.

Tax auditors have functions and duties to investigate partnership enterprise financial statements. The vital role is to serve the public need with quality of services. Tax auditors must perform audit duties upholding the fundamental principles of professional conduct. Therefore, they should use or apply professional audit proficiency to perform their duties. Professional audit proficiency was an important factor in the present business environment, especially competition in the audit market and the regulator's expectations which put pressure on a tax auditor to gain professional audit proficiency. Hence, tax auditors in Thailand are appropriate samples for this research. The questionnaire is used as the data collection instrument as 1,510 questionnaires were directly mailed to the tax auditors. As for the results, the returned and usable questionnaires was 296 surveys. The effective response rate was approximately 20.16%.

Summary of Results

The results of hypotheses testing reveal that audit learning capability positively affects audit quality and audit effectiveness. Audit method integration positively affects audit quality and information reliability increase. Audit technology implementation positively affects information benefit enhancement and audit effectiveness. Audit skepticism orientation positively affects audit quality, information benefit enhancement, information reliability increase, and audit effectiveness. Finally, audit ethics focus

positively affects audit quality and information reliability increase. In addition, knowledge management competency is an important factor that strengthens relationships between audit learning capability and audit quality; relationships between audit technology implementation and information reliability; relationships between audit ethics focus and information benefit enhancement.

For the effects of the consequences, this research shows that audit quality positively affects information benefit enhancement and information reliability increase. Information benefit enhancement positively affects audit effectiveness. Additionally, information reliability increase positively affects audit effectiveness. Besides, for the influences of the antecedents, this research finds that both audit survival commitment and audit experience diversity positively affect audit learning capability, audit method integration, audit technology implementation, audit skepticism orientation, and audit ethics focus. Technology growth development positively affects audit technology implementation, audit skepticism orientation, and audit ethics focus. Also, stakeholder pressure intensity positively affects audit learning capability, audit method integration, audit skepticism orientation, and audit ethics focus. Altogether, Table 18 shows the summary of all research questions and results; and a model summary of the results of all hypotheses testing is presented in figure 10.

Table 18: Summary of Results in All Hypotheses Testing

Research Questions	Hypothesis	Results	Conclusions
(1) How does each dimension of professional audit proficiency affect audit quality, information benefit enhancement, information reliability increase, and audit effectiveness?	Hypotheses 1a-d, 2a-d, 3a-d, 4a-d, 5a-d	- Audit learning capability is significantly and positively related to audit quality and audit effectiveness (H1a, H1d). - Audit method integration is significantly and positively related to audit quality and information reliability increase (H2a, H2c). - Audit technology implementation is significantly and positively related to information benefit enhancement and audit effectiveness (H3b, H3d). - Audit skepticism orientation is significantly and positively related to audit quality, information benefit enhancement, information reliability increase, and audit effectiveness (H4a-d). - Audit ethics focus is significantly and positively related to audit quality and information reliability increase (H5a, H5c).	Partially Supported

Table 18: Summary of Results in All Hypotheses Testing (continued)

Research Questions	Hypothesis	Results	Conclusions
(2) How does audit quality have an influence on information benefit enhancement, information reliability increase, and audit effectiveness?	Hypotheses 6a-c	- Audit quality is significantly and positively related to information benefit enhancement and information reliability increase (H6a-b).	Partially Supported
(3) How do information benefit enhancement and information reliability increase have an influence on audit effectiveness?	Hypotheses 7, 8	- Information benefit enhancement is significantly and positively related to audit effectiveness (H7). - Information reliability increase is significantly and positively related to audit effectiveness (H8).	Supported
(4) How do audit survival commitment, continuous audit improvement, audit experiences diversity, technology development growth, and stakeholder pressure intensity have an influence on each dimension of professional audit proficiency?	Hypotheses 9a-e, 10a-e, 11a-e, 12a-e, 13a-e	- Audit survival commitment has an effect on audit learning capability, audit method integration, audit technology implementation, audit skepticism orientation, and audit ethics focus (H9a-e).	Partially Supported

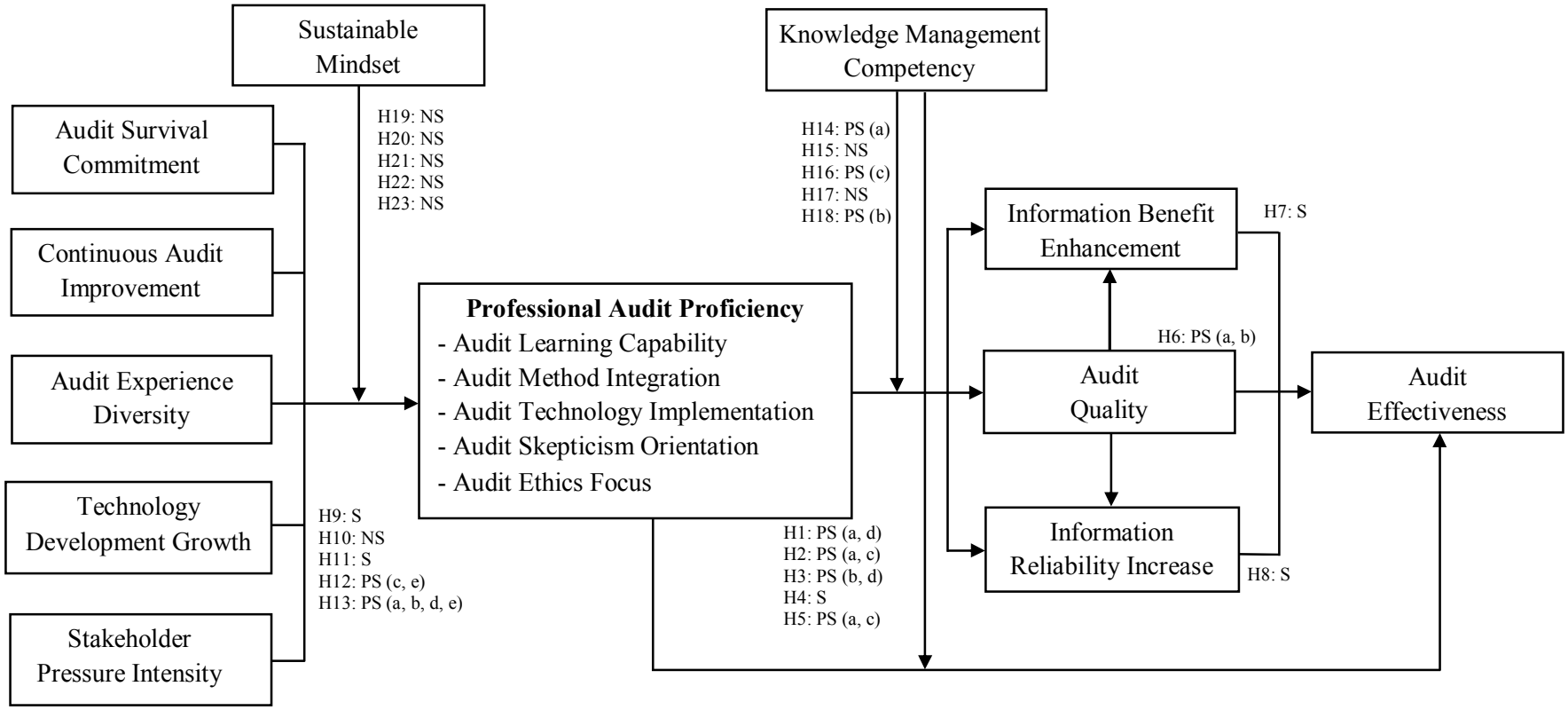
Table 18: Summary of Results in All Hypotheses Testing (continued)

Research Questions	Hypothesis	Results	Conclusions
		- Audit experiences diversity has an effect on audit learning capability, audit method integration, audit technology implementation, audit skepticism orientation, and audit ethics focus (H11a-e). - Technology development growth has an effect on audit technology implementation and audit ethics focus (H12c, H12e). - Stakeholder pressure intensity has an effect on audit learning capability, audit method integration, audit skepticism orientation, and audit ethics focus (H13a, H13b, H13d, H13e).	
(5) How does knowledge management competency moderate the effect of each dimension of professional audit proficiency on audit quality, information benefit enhancement, information reliability increase, and audit effectiveness?	Hypotheses 14a-d, 15a-d, 16a-d, 17a-d, 18a-d	- Knowledge management competency is significantly and positively moderate the effect of audit learning capability on audit quality (H14a).	Partially Supported

Table 18: Summary of Results in All Hypotheses Testing (continued)

Research Questions	Hypothesis	Results	Conclusions
		- Knowledge management competency is significantly and positively moderate the effect of audit technology implementation on information reliability increase (H16c). - Knowledge management competency is significantly and positively moderate the effect of audit ethics focus on information benefit enhancement (H18b).	
(6) How does sustainable mindset moderate the influence of audit survival commitment, audit experiences diversity, continuous audit improvement, technology development growth, and stakeholder pressure on each dimension of professional audit proficiency?	Hypotheses 19a-e, 20a-e, 21a-e, 22a-e, 23a-e	- Sustainable mindset has not an effect on the relationship between audit survival commitment, audit experiences diversity, continuous audit improvement, technology development growth, and stakeholder pressure on each dimension of professional audit proficiency.	Not supported

Figure 10: Model Summary of the Results of All Hypotheses Testing



Contributions

The conceptual model analyzed in this research provides theoretical contributions, practical contributions, and institutional contributions as follows.

Theoretical Contributions

This study contributes to theoretical contributions in four main respects. First, this research can expand the auditing literature related to professional audit proficiency, especially from the point of view of the sample group. The sample in this research is tax auditors whose responsibilities are to verify small enterprises in Thailand. To the researcher's knowledge, previous research has contained competency studies of financial accountants, management accountants, internal auditors, and external auditors. Therefore, this research expands the auditing research on the topic of professional audit proficiency from the viewpoint of tax auditors which covers the characteristics of audit professionals in the context of Thailand.

Second, the results of this research contribute to auditing literature on the professional audit proficiency, by examining components of the tax auditors' professional proficiency. Based on the audit competence concept introduced by IAESB, this study examined in order to identify the significant components of professional audit proficiency that are professional attitudes. The result can serve as a basis for a better understanding of the dimensions of professional audit proficiency in a tax audit context. Additionally, the present study also provides a new aspect on audit learning capability which is work-based learning or experiential learning, which is a significant difference from a prior study.

Third, the capability approach focuses on what people are effectively able to do and to be; which are their capabilities. This finding in present research expands the capability theory in that the professional audit proficiency is an important capability of tax auditors to do things which reach the goal of increasing audit outcomes.
A professional audit proficiency is the set of abilities of a tax auditor to perform an activity in various manners and through continuous use. The findings reported in the present study provide preliminary evidence on the perceptions of tax auditors towards professional audit proficiency and audit outcomes. It was discovered that significant capability is audit skepticism orientation. Audit skepticism orientation is subjective

which is reflected in their judgments and actions between performing duties. Therefore, the right attitude is an important capability for tax auditors in performing their duties with suitable integrity that helps a tax auditor to gain greater performance.

Finally, the social cognitive theory is used to explain that the tax auditor's behavior is the result of the interaction between environmental factors and personal factors. This finding in the present research expands the social cognitive theory in which personal factors are important factors, stimulating tax auditors to perform audit duties with professional audit proficiency for building the value of audit outcomes. Especially, audit survival commitment and audit experience diversity are the essential personal factors that are inspiring tax auditors' behaviors. Meanwhile, the environmental factor is stakeholder pressure intensity that is a major factor which has affected tax auditors' behaviors as well.

Practical Contributions

The results of this research help tax auditors to understand and identify the important dimensions of professional audit proficiency for applying them to practices which can improve their valuable audit outcomes.

According to the results of this research, tax auditors should work with professional audit proficiency. To exercise this role, tax auditors can use the results in this research to focus on maintaining and developing their capability. A tax auditor should spend more effort to learn and gain knowledge utilization to perform audit tasks, especially learning by doing, and reviewing old working papers. Knowledge acquired from experiential learning can help tax auditors' understanding of the deep picture of a business, operations, and accounting rules. Furthermore, a tax auditor should be combining the same audit methods and/or linking the different audit methods which can reduce audit time. The audit uses several methods to collect sufficient audit evidence, but under time restriction. Thus, the ability of a tax auditor to integrate methods leads to an efficient audit. In addition, a tax auditor should be using technology in their work, both audit technology and accounting technology, which can access data and analyze information. Moreover, a tax auditor should learn and train to use technology in an audit, including using technology to build a database that helps the tax auditor to systematically collect and retrieve audit data. Next, a tax auditor should be exercising

and maintaining skeptical actions throughout the audit process. Especially, a tax auditor should focus on the assessment of uncertainties in both internal and external factors, suspecting vital issues before setting an audit plan, and reviewing and questioning the correctness of audit evidence. Finally, a tax auditor should exhibit ethical actions when faced with conflicting situations. Especially, a tax auditor should focus on performing an audit that is compatible with laws, with unbiased operation and reports, and keep a client's information as confidential. Therefore, a tax auditor might be learning from a prior ethical case which provides suitable guidance for them to respond when faced with ethical situations.

Essentially, this result throws an important light on audit skepticism orientation. The result is consistent with prior studies that suggest the influence of audit skepticism on audit results, and it is a significant attitude of audit professionals. Audit skepticism affects tax auditor judgment and also tax auditor actions. Audit skepticism allows tax auditors to identify more fraud chances, increase audit hours, produce more alternative explanations; that is basic to the performance of a high-quality audit. Audit skepticism orientation is important to tax auditors for providing audit quality, information benefit enhancement, information reliability increase, and achieved audit effectiveness. Therefore, tax auditors must be aware of the significance to exercise and maintain skeptical judgments and skeptical actions throughout the operation of the audit task. Moreover, tax auditors should practice and learn to build a skeptical mind with an experienced auditor who encounters suspicious situations. An experienced auditor has knowledge and tactics that can identify the sign of suspicious transactions. Thus, they can transfer their knowledge and tactics to an inexperienced auditor to reinforce a skeptical mind.

Additionally, tax auditors have a responsibility to verify enterprises' financial statements under the regulations. These enterprises are required to have qualifications as follows: five million baht of capital registration, thirty million baht of total assets, and thirty million baht of total revenues. Therefore, the proficient tax auditor should upgrade their professional certificate from tax auditor to certified professional auditor which can expand their scope of responsibility to verify big firms. Moreover, auditors who verify big firms enhances a tax auditor’s professional proficiency because they have faced a variety of business systems, complex transactions, and many uncertain situations which advocate them to demonstrate a high proficiency.

Institutional Contributions

This result contributes to related institutions as follows. Firstly, the results of this research may be useful evidence to develop guidelines for the Revenue Department, Ministry of Finance, which should be concerned about the ability to exercise the attitude of audit skepticism. It should accelerate the development of guidelines about the requirements of tax auditors in terms of professional audit proficiency to improve the outcomes of audit, and building confidence and reliability for small firms and stakeholders. Also, the institutions should advocate the application of audit skepticism by training in knowledge and skills that will allow auditors to appropriately apply judgment and skepticism in different situations for obtaining evidence. For example, the institutions should establish training courses related to industry operations, information technology, internal controls, and accounting systems because obtaining knowledge and an understanding of the current environment for clients can help tax auditors better identify risks. In addition, the result still enables one to understand that key factors are stimulating professional audit proficiency, especially audit survival commitment and audit experience diversity. Therefore, the Revenue Department, which controls tax auditors, can use the results to develop training programs which can apply to real practice, and support practice with realistic experience that can raise the professional audit proficiency. Meanwhile, it can build the confidence of tax auditors who can survive in their career in regards to suitable audit fees with tasks and risks, which lead to effective tax collection.

Secondly, this result can contribute to education institutions, in improving accounting courses that produce accounting education, which is the basis of qualifications for tax auditors. The basic requirements of anyone who wants to be a tax auditor is a bachelor's degree in accounting and passing qualifying exams. That means a new graduate can be a tax auditor without experience. Therefore, the educational institutions should incorporate learning outcomes related to key audit proficiency as a way to ensure that the accounting curriculum is providing students with the skills and knowledge they will need in the tax audit business.

Limitations and Future Research Suggestions

Limitations

This research has some limitations of which one must be aware in interpreting the results. The majority of respondents are only holders of tax auditor certification and are more than 40 years of age. This characteristic may cause a variation in the statistical test results. Therefore, the results of control variables should be interpreted carefully. Also, this being a cross-sectional survey, the opinions of the tax auditor might change over time.

Future Research Suggestions

According to the results of this research, there are many suggestions for future research as follows.

Firstly, the moderating effect of sustainable mindset has insignificant results, and future research should consider seeking an additional study on other potential moderating variables such as growth mindset or fix mindset. Regarding growth mindset, persons with growth mindset believe that they can learn anything and keep going even when work is difficult. On the other hand, persons with a fixed mindset are those who are more likely to give up easily. Hence, future research may separate them into dummy variables because the different mindsets may be associated with a different level of capability spending and audit achievement.

Secondly, the result shows that audit skepticism orientation is the most important component of professional audit proficiency. Thus, future research needs to deeply expand the research by investigating audit skepticism orientation regarding the dimension of audit skepticism; namely, questioning mind, searching for knowledge, suspension of judgment, understanding of interpersonal relationships, self-confidence, and self-determination; in order to identify which dimension is important for practitioners.

Thirdly, future research needs to expand the research contributions and to verify the research generalizability by collecting data from other populations, and/or comparative populations, or from other auditing professions who have roles and responsibilities similar to tax auditors, such as certified public accountants,

governmental auditors, and co-operative auditors, in order to increase the level of reliable results.

Fourthly, future research still needs to additionally study professional audit proficiency from practitioners' perspectives again to confirm the result of this research, especially after adopting SME accounting standards that affect SMEs' accounting roles; that means it affects tax auditors' practices as well.

Lastly, further research may desire to investigate from other stakeholders' perspectives such as owner-managers, creditors, or regulators because they may have different perspectives from the results of this research which focuses on the practitioner's perspective.

Summary

This chapter briefly details the conclusion related to the results of the effect of professional audit proficiency on audit effectiveness. The contents relate to contributions including theoretical, practical, and institutional contributions. The results extend the capability theory that professional audit proficiency is the valuable capability that can enhance audit outcomes. Meanwhile, the social cognitive theory is extended to personal factors and environmental factors stimulating professional audit proficiency. In addition, the results help the tax auditors to specify the key dimension of professional audit proficiency which helps to achieve audit effectiveness under the practitioner's perspective. Moreover, there are limitations and suggestions for future research that should be examined again.

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APPENDICES

APPENDIX A

The Original Items

Table 1A: Original Items in Scales

Construct	Items
Audit Learning Capability (ALC)	
ALC1	I believe that learning in the audit provides a foundation knowledge to perform the audit and allows to performing the audit more effectively.
ALC2	I reviewed and proved of prior audit working papers to guide for current analysis and planning in audit work more efficient.
ALC3	I always synthesize and analyze about errors discovered that helps to raise the deliberate in audit more.
ALC4	I analyze and link about audit causes, problems, and results systematically that help to operating an audit effectively.
Audit Method Integration (AMI)	
AMI1	I believe that the several audit method linkage can help audit operation efficiently more.
AMI2	I combine audit techniques systematic that can reduce duplication of audit steps and enhance audit capability to greater performance.
AMI3	I link audit methods which are similar and equal systematically that help obtains an accurate and reliable of audit evidence even more.
AMI4	I link the source of data in audit both of clients, others auditor, and related agencies systematically that help obtains a sufficient and suitable audit evidence even more.
Audit Technology Implementation (ATI)	
ATI1	I believe that apply technologies in audit work systematically can help to do audit activities effective and efficient more.
ATI2	I apply computer and related information technologies in audit work systematically which helps obtained audit evidence thoroughly and up-to-date even more.
ATI3	I use a computer to calculate and data analysis in audit work that helps obtain an accurate and reliable of audit evidence even more.
ATI4	I create audit database are systematically and substantial that helps effectively to retrieve data.

Table 1A: Original Items in Scales (continued)

Construct	Items
Audit Skepticism Orientation (ASO)	
ASO1	I believe that the application of doubtful in the audit process as normal to help to reach audit objectives well.
ASO2	I have a suspecting of vital issues before setting audit plan that can make audit planning accord with the level of materiality and each client's risk appropriately.
ASO3	I focus on the assessment of uncertainties both internal and external factor that may affect the performing of audit continues to help suitable modify audit procedures according to the situation.
ASO4	I focus on reviewing and questioning about the completeness, adequacy, and correctness of audit evidence and conclusion to assure that audit activities cover clients' transactions.
ASO5	I normally bring an observation to searching for more information on obtaining a sufficient and reasonable evidence to confident to a proper conclusion with existing client's situation.
Audit Ethics Focus (AEF)	
AEF1	I believe in adhering to principle audit ethics extremely that makes the audit performance be good quality and accept by stakeholders.
AEF2	I perform an audit comply with regulates conduct and accounting standard, and disclose information according to laws and related profession rules extremely that make results of an audit are reliable, accurate, and beneficial to all stakeholders equally.
AEF3	I operate and report audit results based on unbiased without personal interest when deciding on vital issues that lead to straightforwardly operation and conclusion.
AEF4	I take precaution to use of internal data along with kept as confidentiality substantially that make earned acceptance by stakeholders.
AEF5	I only perform duties in part of I have knowledge, skills, and experience that helps to respond customer's needs even more.

Table 1A: Original Items in Scales (continued)

Construct	Items
Audit Quality (AUQ)	
AUQ1	I have detected and reported the detected of essence frauds and defects of an audited firm honestly.
AUQ2	I have detected and presented the risk and uncertainty information of audited firm reasonably**.**
AUQ3	I have reported the results of the audit of financial statements that reflect the economic performance of the business accurately and reliably.
AUQ4	I have reported audit results both financial information and significant issues which are stakeholders should take an interest clearly.
Information Benefit Enhancement (IBE)	
IBE1	I have presented information that emphasized on substance over form.
IBE2	I have sent warning signals to the parties that sufficient for potential risk evaluate.
IBE3	I have presented information that helps to predict circumstances and direction of client's future operation clearly and reasonably.
IBE4	I have presented an important information meticulous, cover and understood easily.
Information Reliability Increase (IRI)	
IRI1	I have presented data based on truthfulness by indicated remark and referable evidence that can mention obviously.
IRI2	I have presented data about incorrectness transactions which is in conflict with standards straightforwardly by correctly reference from sources of audit evidence differently.
IRI3	I have presented data to demonstrate the actual performance of the firm under the clear and provable process, steps, and methods of the audit.
IRI4	I have presented significant data certainly and reasonably which can prove and assure about data source clearly.

Table 1A: Original Items in Scales (continued)

Construct	Items
Audit Effectiveness (AUE)	
AUE1	I can work beyond my audit goal.
AUE2	I retain old customers to use the audit services continually and have new customers increased obviously.
AUE3	I earned believability from stakeholders in term of openly perform.
AUE4	I have earned the acceptance of audit profession that I perform like a professional auditor dominantly and obviously.
Audit Survival Commitment (ASC)	
ASC1	I focus on audit operation taking into consideration of all stakeholders' needs.
ASC2	I commit to doing an auditing with all capability.
ASC3	I adhere to allow on principles and general auditing standards strictly.
ASC4	I attempt to develop knowledge and skills extremely.
Continuous Audit Improvement (CAI)	
CAI1	I focus in attending to training, seminars, and knowledge development continuously helps to develop knowledge and skills of accounting and auditing practice even more.
CAI2	I commit to education, research, and following related information that may affect the audit operations, including related policies continuously.
CAI3	I have to consult problem and operational issues related to the audit engagement with other auditors, profession agency, and other agencies always.
CAI4	I educate and interpreting new auditing issues and related accounting changes regularly.
Audit Experience Diversity (AED)	
AED1	I focus on bringing the different kinds of good experience to be guidance for operation in a present task.

Table 1A: Original Items in Scales (continued)

Construct	Items
AED2	I focus on an integration of knowledge and understanding the diverse types of businesses and industries that I have audited in the past bring to adapt for present operation.
AED3	I focus on bring flaws detected in the past to develop and improve the audit operation always.
AED4	I focus on the study and analysis about of success and error in the past to bring the information for developing audit operation more efficient.
Technology Growth Development (TGD)	
TGD1	Various technology is constantly evolving and changing that make auditor have to search and learn to apply technologies in audit operation better.
TGD2	Accounting program and auditing program are modern growing that makes auditor apply to a suitable situation is even more.
TGD3	The development of client's electronic data storage occurs steadily from which auditors must be searching and understanding to optimize the data access even more.
TGD4	Advances in technology both of hardware and software help auditors can select the use of technology in line with the current audit engagements more appropriately.
Stakeholder Pressure Intensity (SPI)	
SPI1	Customers expect the quality of audit to be greater make the auditors must learning about audits' guidance to help to respond customers' needs and based on profession regulations even more.
SPI2	As auditor has a lot, auditors must commonly develop knowledge and capabilities of performance for reserving customer's need.
SPI3	Audit profession agencies and related agencies have enforcing new rules, regulations, and professional standards more continual that make auditor have to learn and understanding and bring to develop most audit work well.

Table 1A: Original Items in Scales (continued)

Construct	Items
SPI4	Users and public emphasize the result of an audit should signaling the red flag sign about a chance of fraud or cheat of the company make the auditor must a commitment to a professional operation more.
Knowledge Management Competency (KMC)	
KMC1	I teach the knowledge of accounting and auditing including audit resources management with colleagues and others auditor.
KMC2	I exchange audit skills, techniques, methods of the problem- solving continually.
KMC3	I share data, finding, and mistake with other auditors invariably.
KMC4	I always brainstorm, discuss, and dispute about the vital audit issues.
Sustainable Mindset (SUM)	
SUM1	I believe that audit profession is a prestigious profession and public acceptance.
SUM2	I have faith in audit profession as to build an ultimate benefit for stakeholders.
SUM3	I have an awareness and appreciation of role, obligation, and responsibility of profession as a significant part of economics system.
SUM4	I am confident in a capacity of audit profession that can respond to public need well.

APPENDIX B

Non-Response Bias Tests

Table 1B: Test of Non-Response Bias

Comparison	N	Mean	S.D.	t	p-value
Length of audit tenure:					
-First group	148	2.662	1.066	0.274	0.785
-Second group	148	2.628	1.058		
The period of tax auditor certificate holder:					
- First group	148	2.114	0.930	-0.678	0.499
- Second group	148	2.189	0.957		
Average monthly revenue:					
- First group	148	1.412	0.857	-0.734	0.463
- Second group	148	1.486	0.884		
Number of asserted financial statements:					
- First group	148	1.594	0.895	0.212	0.268
- Second group	148	1.716	0.990		

APPENDIX C

Summary of Demographic Characteristics of Respondents

Table 1C: Demographic Characteristics of Respondents

Characteristics		Frequencies	Percent (%)
Gender			
1	Male	126	42.57
2	Female	170	57.43
Total		**296**	**100.00**
Age			
1	Less than 30 years	14	4.73
2	30-35 years	34	11.49
3	36-40 years	48	16.21
4	More than 40 years	200	67.57
Total		**296**	**100.00**
Marital Status			
1	Single	126	42.57
2	Married	153	51.69
3	Divorced	17	5.74
Total		**296**	**100.00**
Education Level			
1	Bachelor's degree	154	52.03
2	Higher than bachelor's degree	142	47.97
Total		**296**	**100.00**
Length of Audit Tenure			
1	Less than 5 years	48	16.21
2	5-10 years	93	31.42
3	11-15 years	71	23.99
4	More than 15 years	84	28.38
Total		**296**	**100.00**

Table 1C: Demographic Characteristics of Respondents (continued)

Characteristics		Frequencies	Percent (%)
The Period of Tax Auditor Certificate Holder			
1	Less than 5 years	87	29.39
2	5-10 years	102	34.46
3	11-15 years	82	27.70
4	More than 15 years	25	8.45
Total		**296**	**100.00**
Average Monthly Income			
1	Less than 100,000 Baht	217	73.31
2	100,000 – 125,000 Baht	46	15.54
3	125,001 – 150,000 Baht	12	4.05
4	More than 150,000 Baht	21	7.10
Total		**296**	**100.00**
Number of Asserted Financial Statements			
1	Less than 50 statements	178	60.14
2	50 -100 statements	64	21.62
3	101 – 150 statements	32	10.81
4	More than 150 statements	22	7.43
Total		**296**	**100.00**
CPAs' Professional Certification			
1	Yes	81	27.36
2	No	215	72.64
Total		**296**	**100.00**

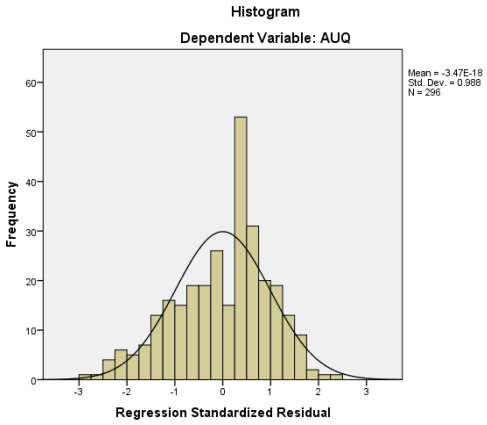
APPENDIX D

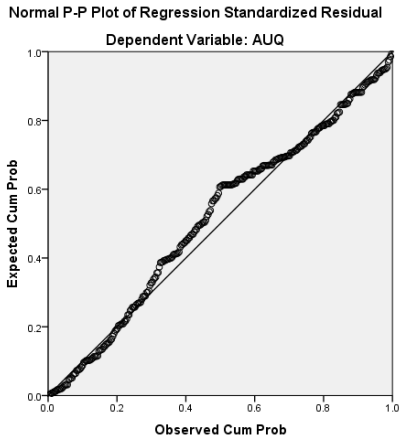
Testing the Assumption of Regression Analysis

Testing the Assumptions of Linear Regression

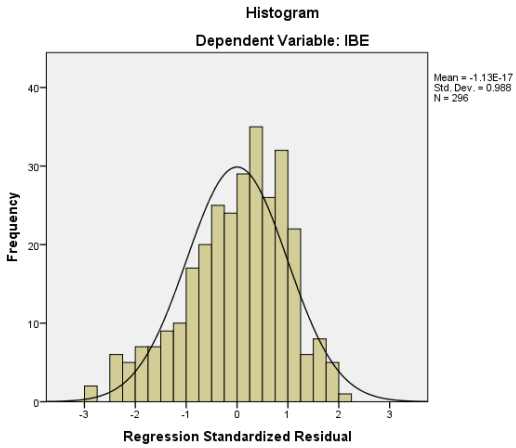
Normality of error term

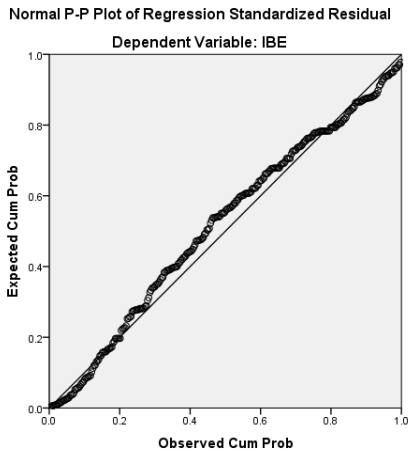
Equation 1: $AUQ = \alpha_1 + \beta_1 ALC + \beta_2 AMI + \beta_3 ATI + \beta_4 ASO + \beta_5 AEF + \beta_6 AGE + \beta_7 PRC + \varepsilon_1$



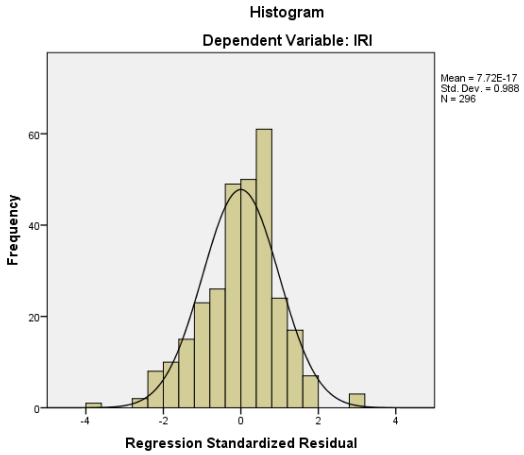


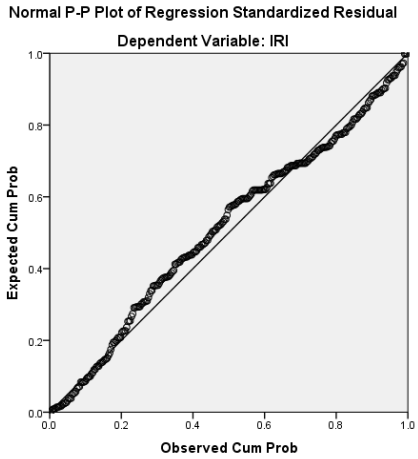
Equation 2: $IBE = \alpha_2 + \beta_8 ALC + \beta_9 AMI + \beta_{10} ATI + \beta_{11} ASO + \beta_{12} AEF + \beta_{13} AGE + \beta_{14} PRC + \varepsilon_2$



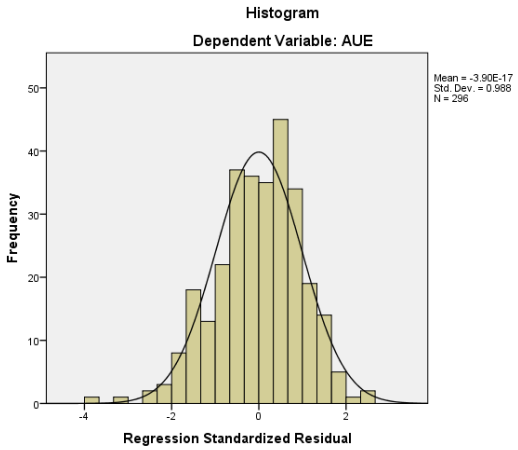


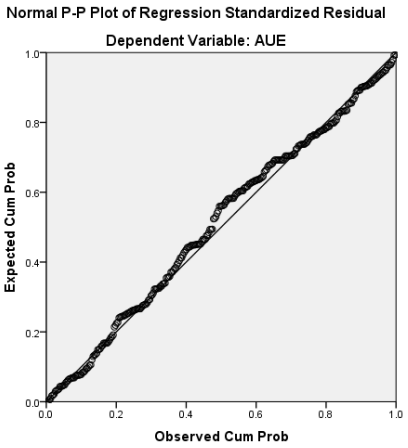
Equation 3: $IRI = \alpha_3 + \beta_{15}ALC + \beta_{16}AMI + \beta_{17}ATI + \beta_{18}ASO + \beta_{19}AEF + \beta_{20}AGE + \beta_{21}PRC + \varepsilon_3$



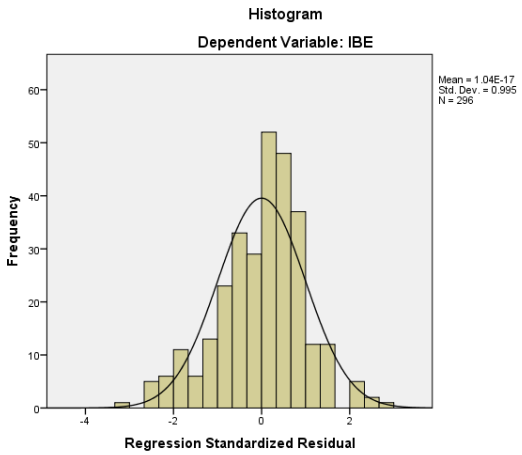


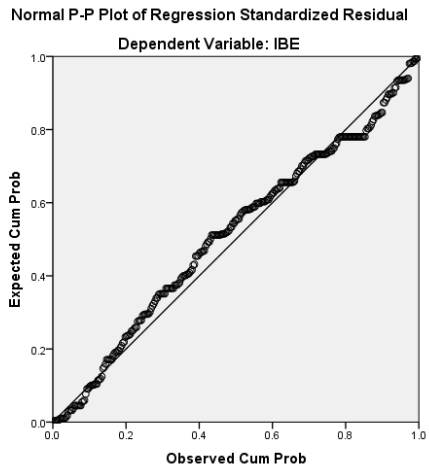
Equation 4: $AUE = \alpha_4 + \beta_{22}ALC + \beta_{23}AMI + \beta_{24}ATI + \beta_{25}ASO + \beta_{26}AEF + \beta_{27}AGE + \beta_{28}PRC + \varepsilon_4$



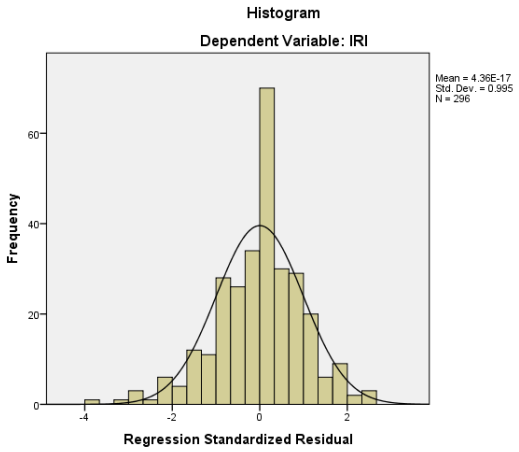


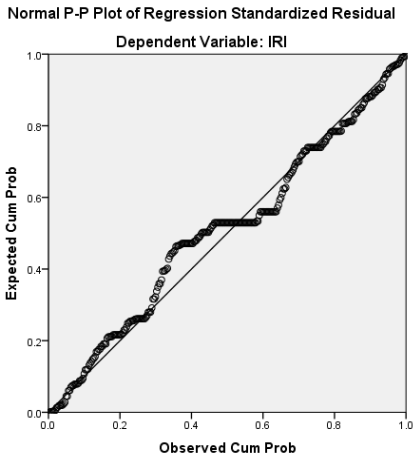
Equation 5: $IBE = \alpha_5 + \beta_{29}AUQ + \beta_{30}AGE + \beta_{31}PRC + \varepsilon_5$



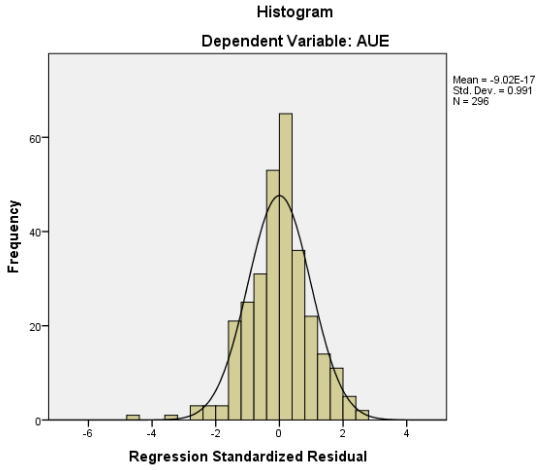


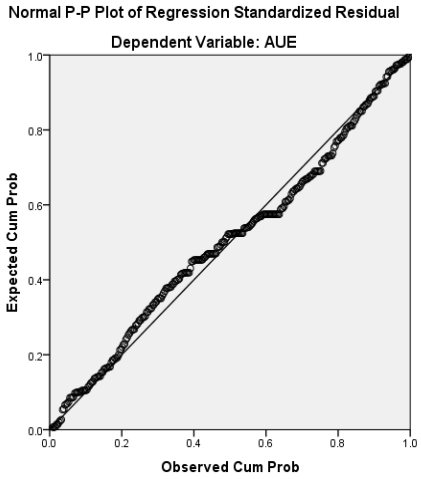
Equation 6: $IRI = \alpha_6 + \beta_{32}AUQ + \beta_{33}AGE + \beta_{34}PRC + \varepsilon_6$



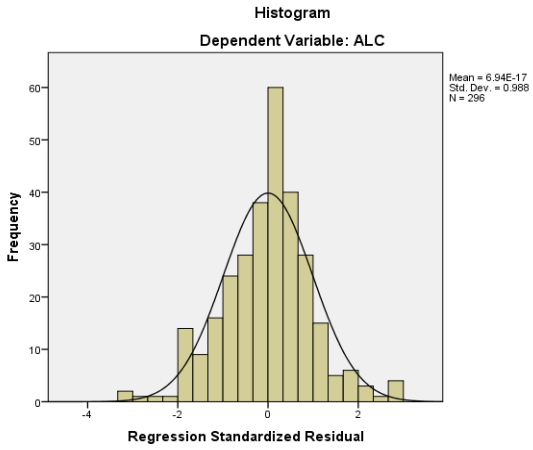


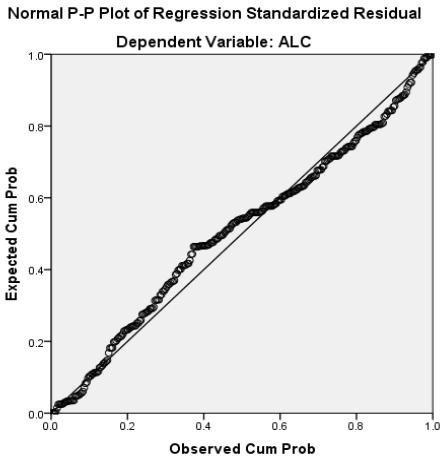
Equation 7: $AUE = \alpha_7 + \beta_{35}AUQ + \beta_{36}IBE + \beta_{37}IRI + \beta_{38}AGE + \beta_{39}PRC + \varepsilon_7$



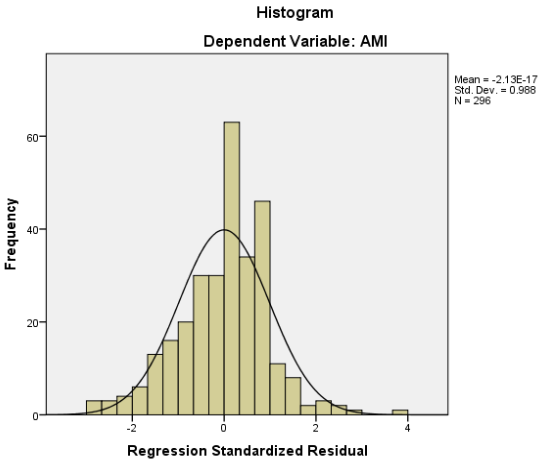


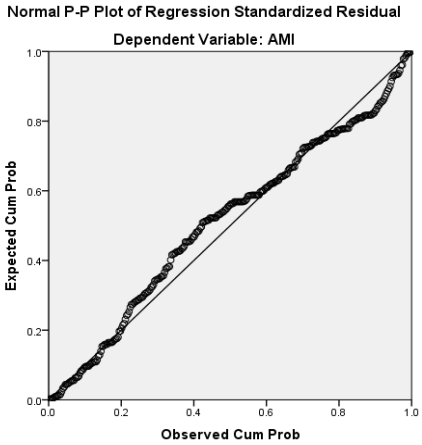
Equation 8: $ALC = \alpha_8 + \beta_{40}ASC + \beta_{41}CAI + \beta_{42}AED + \beta_{43}TDG + \beta_{44}SPI + \beta_{45}AGE + \beta_{46}PRC + \varepsilon_8$



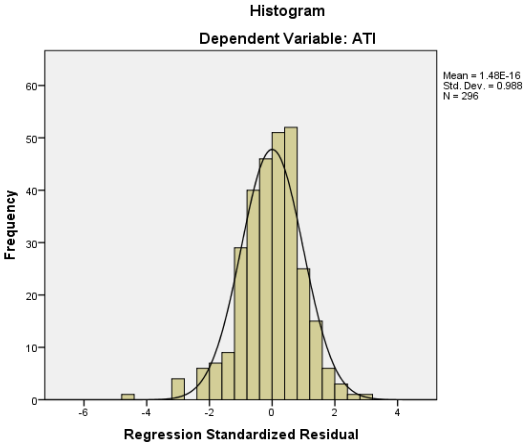


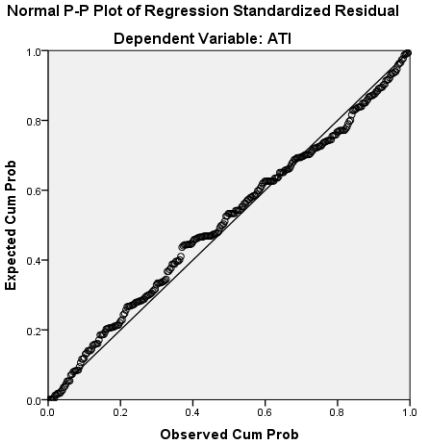
Equation 9: $AMI = \alpha_9 + \beta_{47}ASC + \beta_{48}CAI + \beta_{49}AED + \beta_{50}TDG + \beta_{51}SPI + \beta_{52}AGE + \beta_{53}PRC + \varepsilon_9$



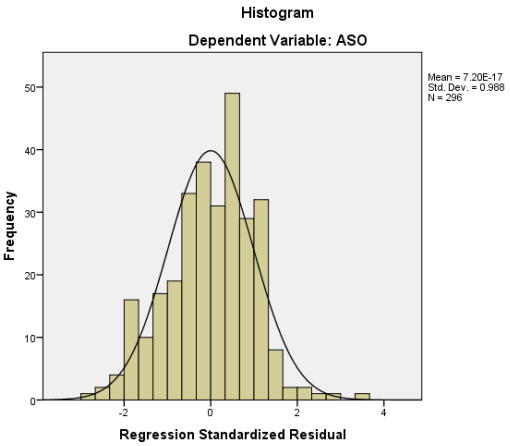


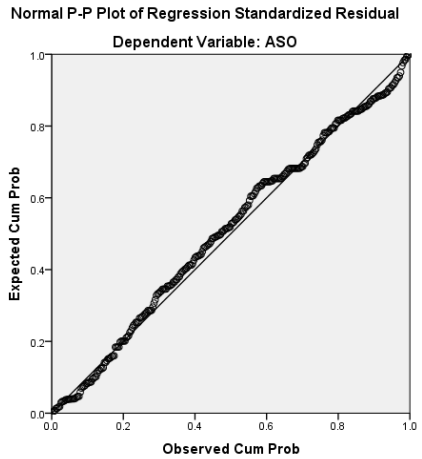
Equation 10: $ATI = \alpha_{10} + \beta_{54}ASC + \beta_{55}CAI + \beta_{56}AED + \beta_{57}TDG + \beta_{58}SPI + \beta_{59}AGE + \beta_{60}PRC + \varepsilon_{10}$



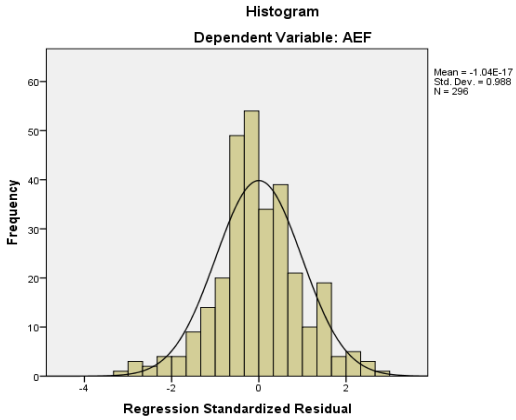


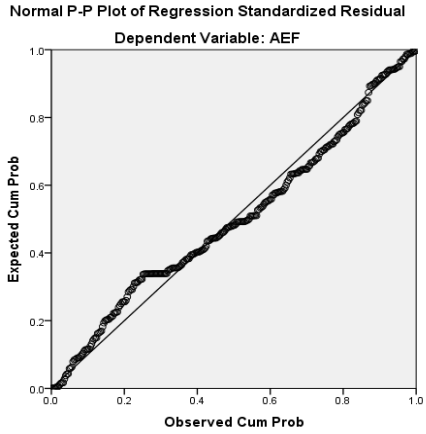
Equation 11: $ASO = \alpha_{11} + \beta_{61}ASC + \beta_{62}CAI + \beta_{63}AED + \beta_{64}TDG + \beta_{65}SPI + \beta_{66}AGE + \beta_{67}PRC + \varepsilon_{11}$



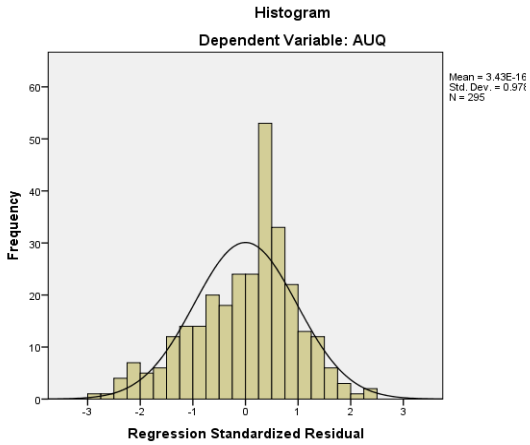


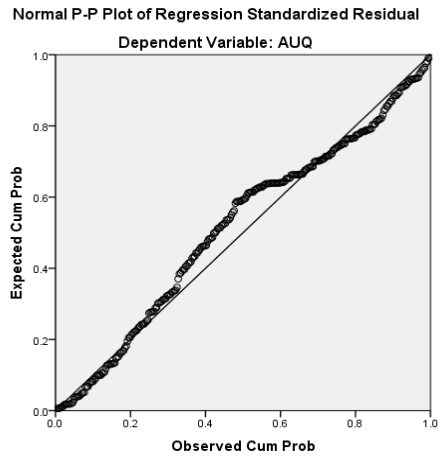
Equation 12: $AEF = \alpha_{12} + \beta_{68}ASC + \beta_{69}CAI + \beta_{70}AED + \beta_{71}TDG + \beta_{72}SPI + \beta_{73}AGE + \beta_{74}PRC + \varepsilon_{12}$



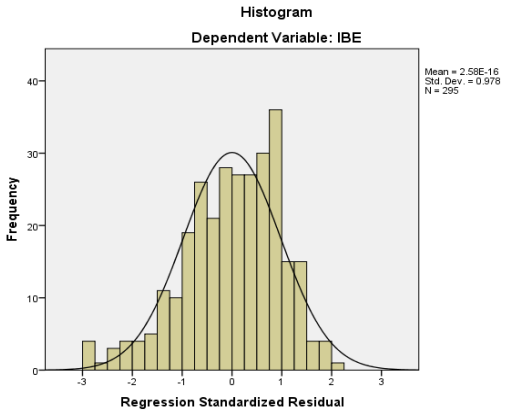


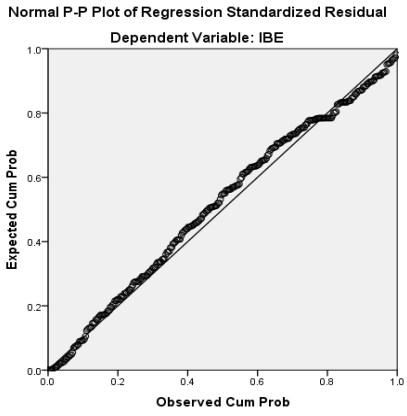
Equation 13: $AUQ = \alpha_{13} + \beta_{75}ALC + \beta_{76}AMI + \beta_{77}ATI + \beta_{78}ASO + \beta_{79}AEF + \beta_{80}(ALC*KMC) + \beta_{81}(AMI*KMC) + \beta_{82}(ATI*KMC) + \beta_{83}(ASO*KMC) + \beta_{84}(AEF*KMC) + \beta_{85}AGE + \beta_{86}PRC + \varepsilon_{13}$



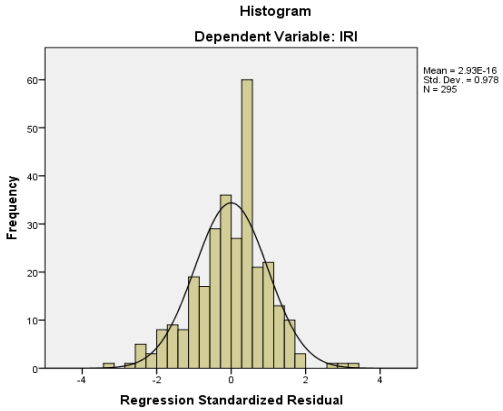


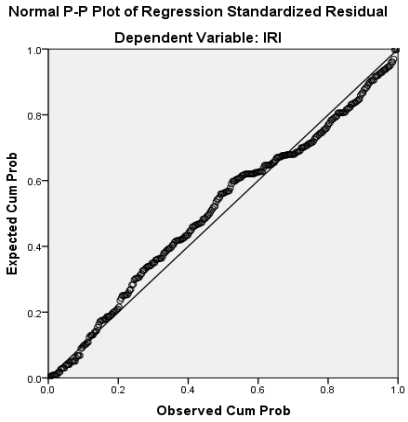
Equation 14: $IBE = \alpha_{14} + \beta_{87}ALC + \beta_{88}AMI + \beta_{89}ATI + \beta_{90}ASO + \beta_{91}AEF + \beta_{92}(ALC*KMC) + \beta_{93}(AMI*KMC) + \beta_{94}(ATI*KMC) + \beta_{95}(ASO*KMC) + \beta_{96}(AEF*KMC) + \beta_{97}AGE + \beta_{98}PRC + \varepsilon_{14}$



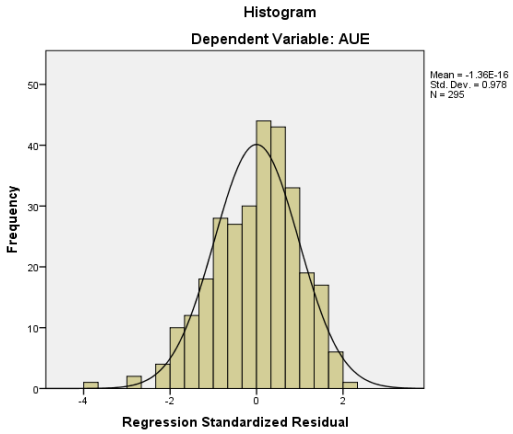


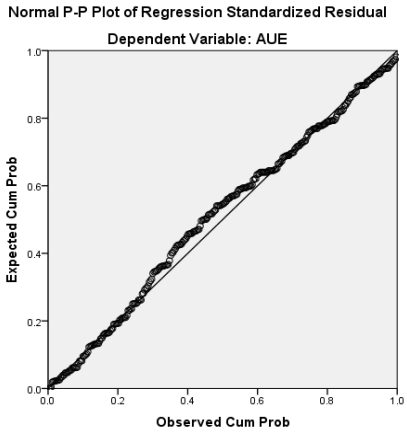
Equation 15: $IRI = \alpha_{15} + \beta_{99}ALC + \beta_{100}AMI + \beta_{101}ATI + \beta_{102}ASO + \beta_{103}AEF + \beta_{104}(ALC*KMC) + \beta_{105}(AMI*KMC) + \beta_{106}(ATI*KMC) + \beta_{107}(ASO*KMC) + \beta_{108}(AEF*KMC) + \beta_{109}AGE + \beta_{110}PRC + \varepsilon_{15}$



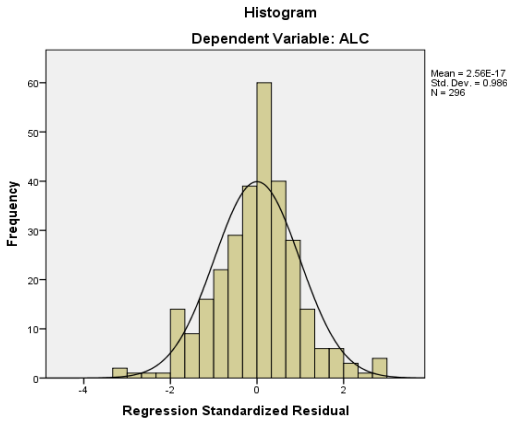


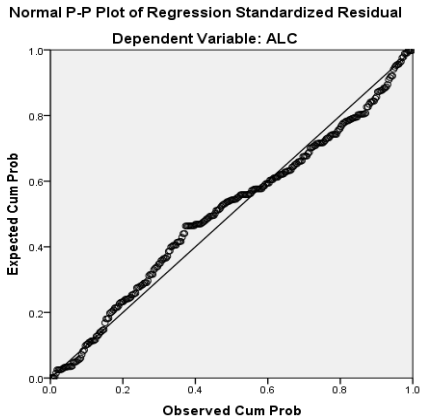
Equation 16: $AUE = \alpha_{16} + \beta_{111}ALC + \beta_{112}AMI + \beta_{113}ATI + \beta_{114}ASO + \beta_{115}AEF + \beta_{116}(ALC*KMC) + \beta_{117}(AMI*KMC) + \beta_{118}(ATI*KMC) + \beta_{119}(ASO*KMC) + \beta_{120}(AEF*KMC) + \beta_{121}AGE + \beta_{122}PRC + \varepsilon_{16}$



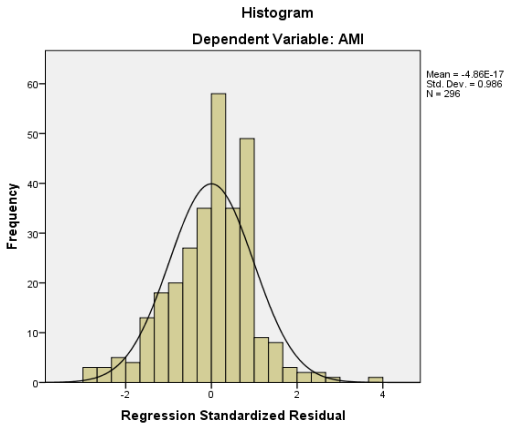


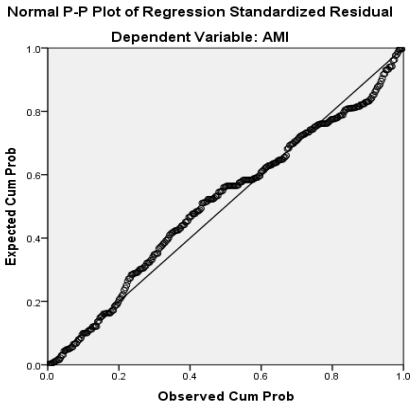
Equation 17: $ALC = \alpha_{17} + \beta_{123}ASC + \beta_{124}CAI + \beta_{125}AED + \beta_{126}TDG + \beta_{127}SPI + \beta_{128}(ASC*SUM) + \beta_{129}(CAI*SUM) + \beta_{130}(AED*SUM) + \beta_{131}(TDG*SUM) + \beta_{132}(SPI*SUM) + \beta_{133}AGE + \beta_{134}PRC + \varepsilon_{17}$



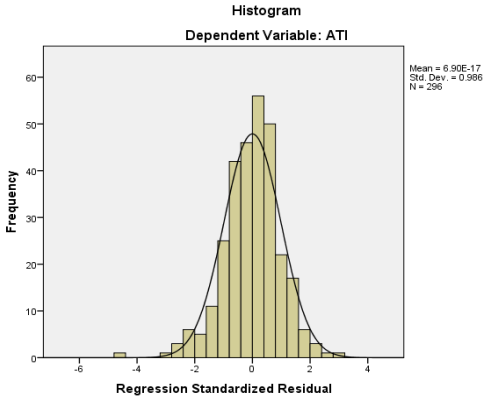


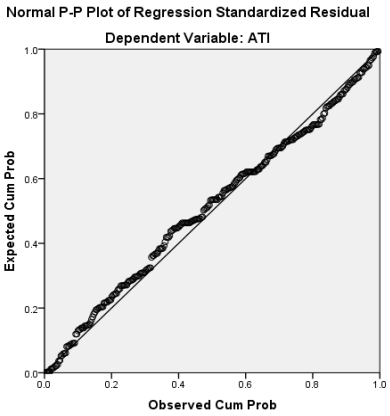
Equation 18: $AMI = \alpha_{18} + \beta_{135}ASC + \beta_{136}CAI + \beta_{137}AED + \beta_{138}TDG + \beta_{139}SPI + \beta_{140}(ASC*SUM) + \beta_{141}(CAI*SUM) + \beta_{142}(AED*SUM) + \beta_{143}(TDG*SUM) + \beta_{144}(SPI*SUM) + \beta_{145}AGE + \beta_{146}PRC + \varepsilon_{18}$



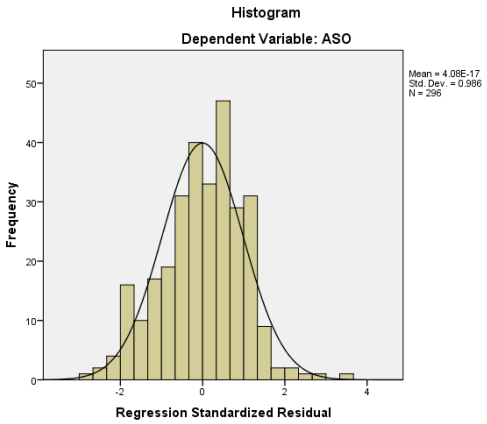


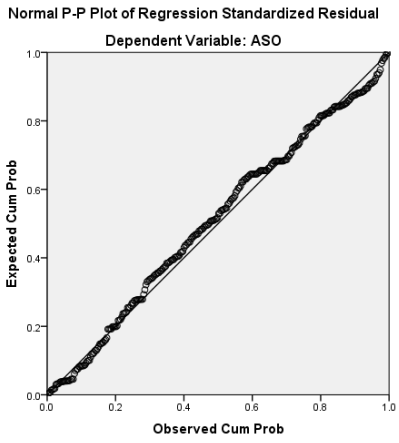
Equation 19: $ATI = \alpha_{19} + \beta_{147}ASC + \beta_{148}CAI + \beta_{149}AED + \beta_{150}TDG + \beta_{151}SPI + \beta_{152}(ASC*SUM) + \beta_{153}(CAI*SUM) + \beta_{154}(AED*SUM) + \beta_{155}(TDG*SUM) + \beta_{156}(SPI*SUM) + \beta_{157}AGE + \beta_{158}PRC + \varepsilon_{19}$



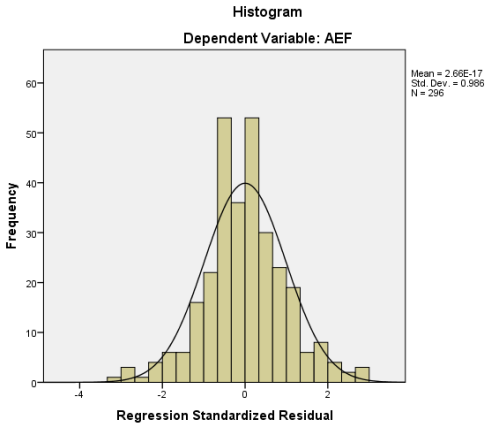


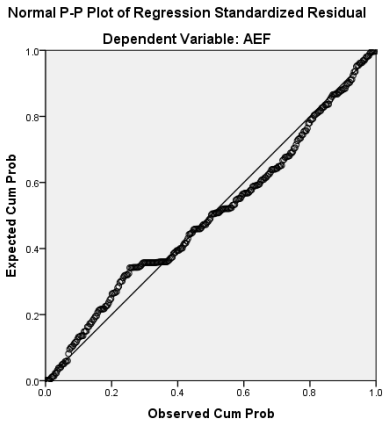
Equation 20: $ASO = \alpha_{20} + \beta_{159}ASC + \beta_{160}CAI + \beta_{161}AED + \beta_{162}TDG + \beta_{163}SPI + \beta_{164}(ASC*SUM) + \beta_{165}(CAI*SUM) + \beta_{166}(AED*SUM) + \beta_{167}(TDG*SUM) + \beta_{168}(SPI*SUM) + \beta_{169}AGE + \beta_{170}PRC + \varepsilon_{20}$





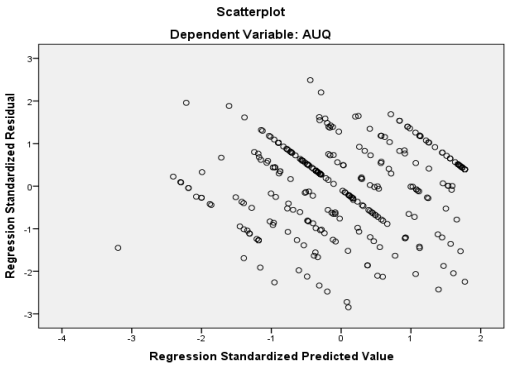
Equation 21: $AEF = \alpha_{21} + \beta_{171}ASC + \beta_{172}CAI + \beta_{173}AED + \beta_{174}TDG + \beta_{175}SPI + \beta_{176}(ASC*SUM) + \beta_{177}(CAI*SUM) + \beta_{178}(AED*SUM) + \beta_{179}(TDG*SUM) + \beta_{180}(SPI*SUM) + \beta_{181}AGE + \beta_{182}PRC + \varepsilon_{21}$



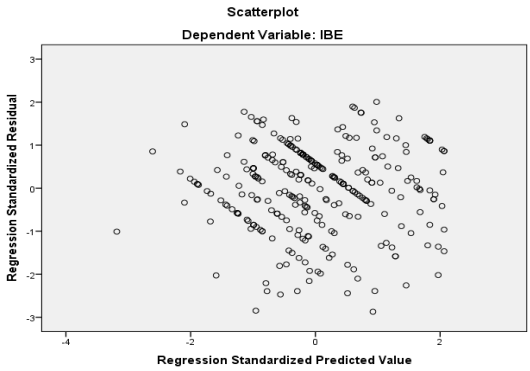


Linearity and Heteroscedasticity

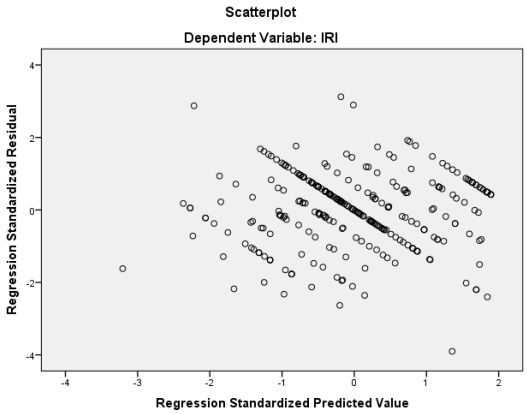
Equation 1



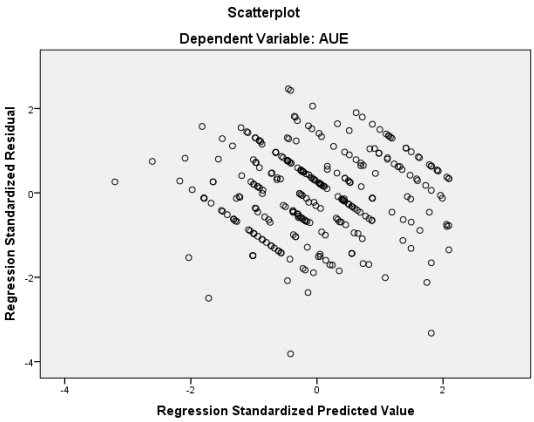
Equation 2



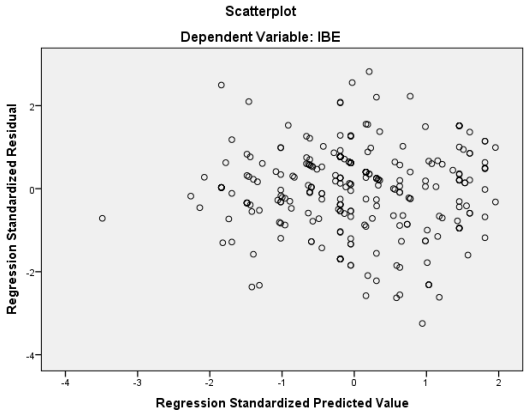
Equation 3



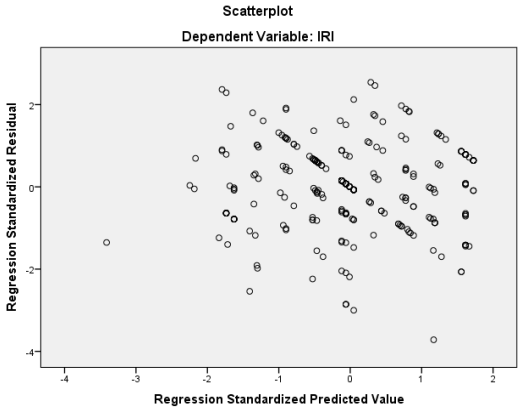
Equation 4



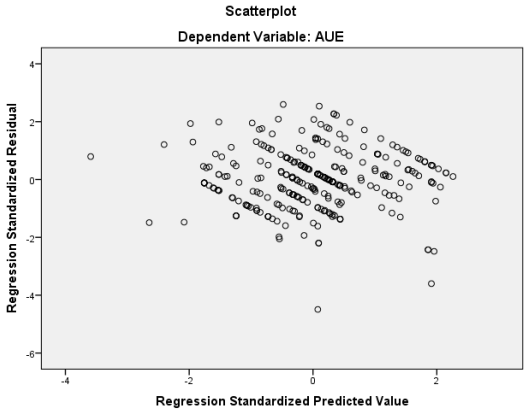
Equation 5



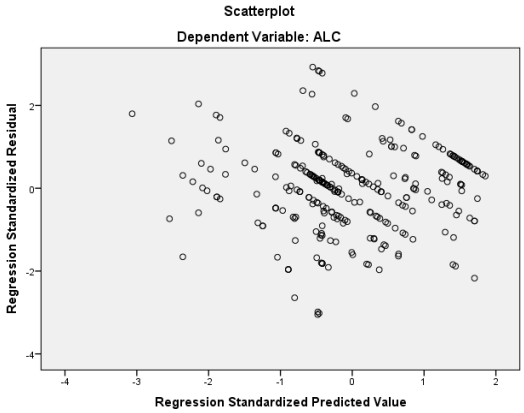
Equation 6



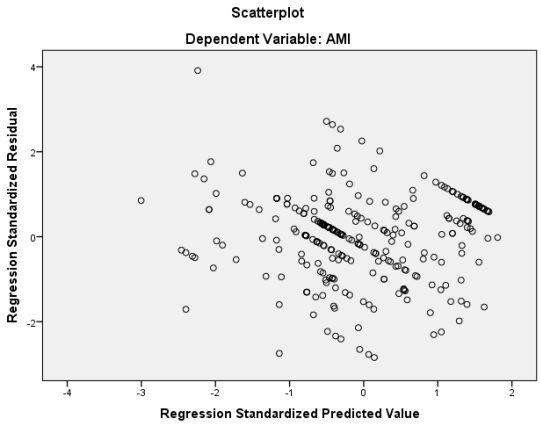
Equation 7



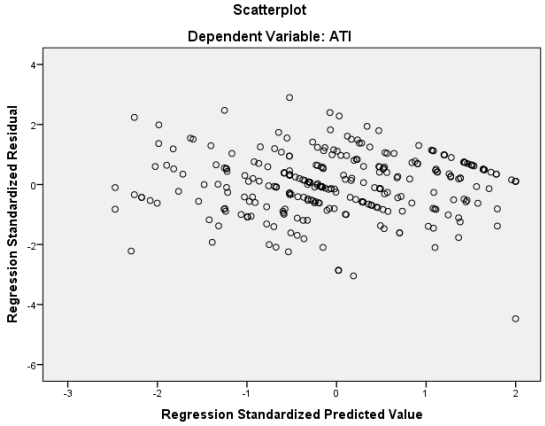
Equation 8



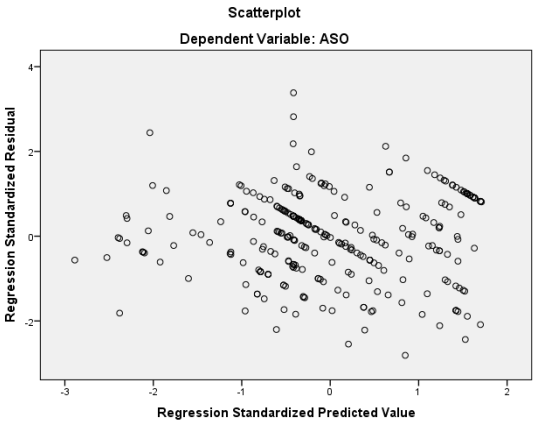
Equation 9



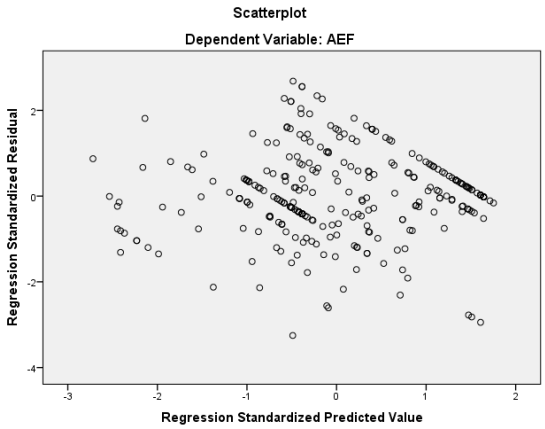
Equation 10



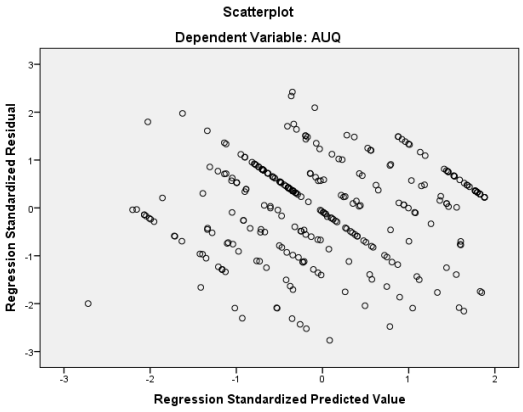
Equation 11



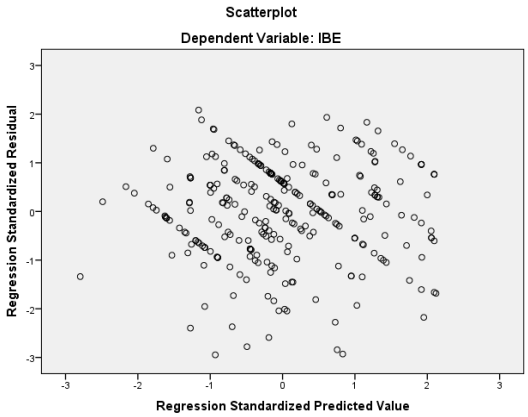
Equation 12



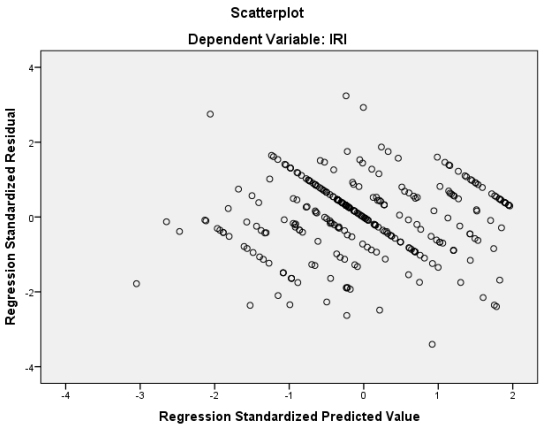
Equation 13



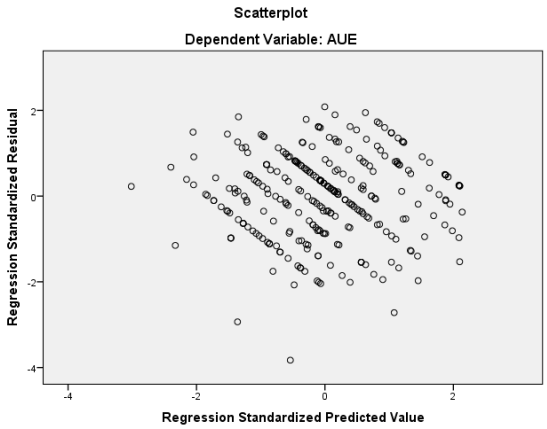
Equation 14



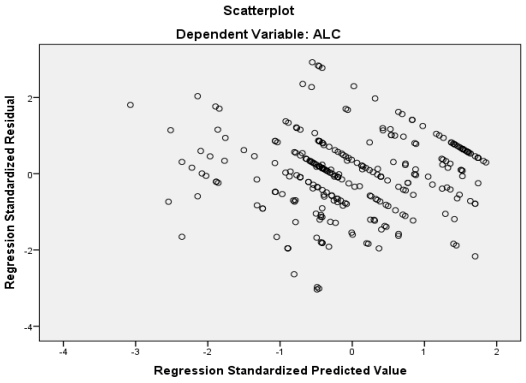
Equation 15



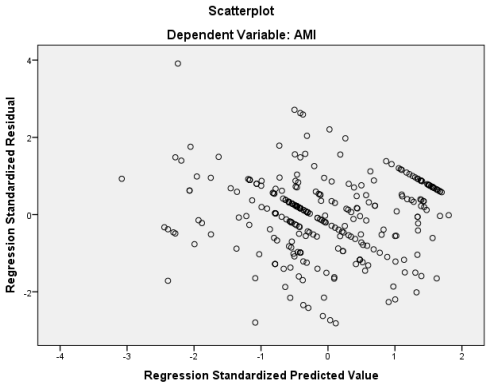
Equation 16



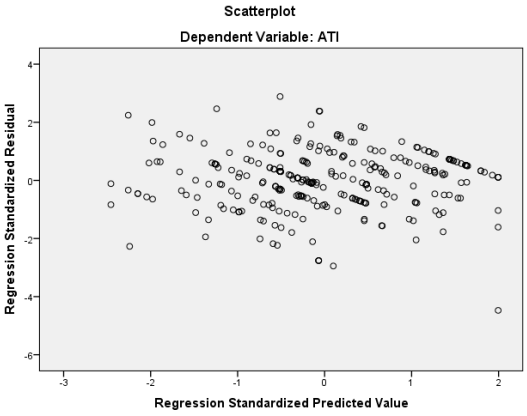
Equation 17



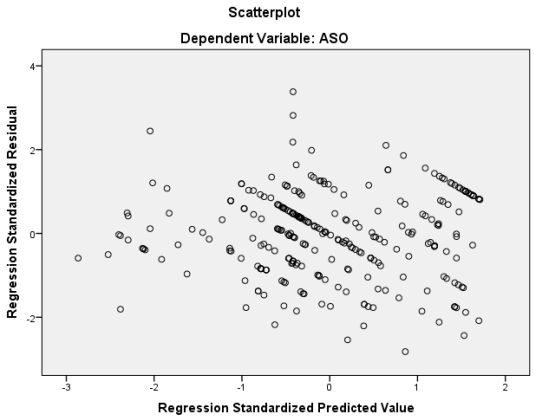
Equation 18



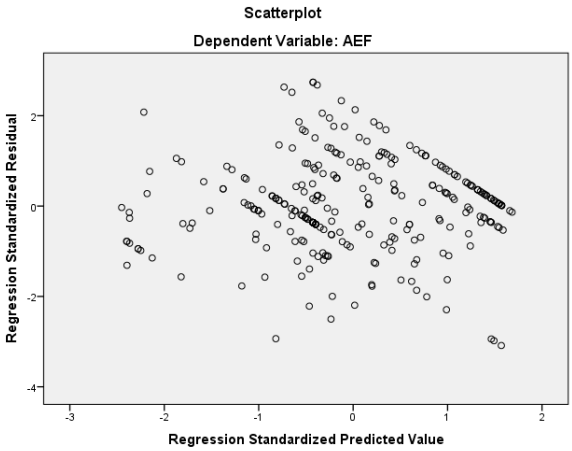
Equation 19



Equation 20



Equation 21



APPENDIX E

Factor Loadings, and Alpha Coefficients of Constructs

Table 1E: Item Factor Loadings and Reliability Analyses in Pre-Test

Constructs	N	Items	Factor Loadings	Reliability (Alpha)
Audit Effectiveness (AUE)	30	AUE1	0.893	0.942
		AUE2	0.907	
		AUE3	0.937	
		AUE4	0.955	
Audit Learning Capability (ALC)	30	ALC1	0.562	0.837
		ALC2	0.902	
		ALC3	0.887	
		ALC4	0.884	
Audit Method Integration (AMI)	30	AMI1	0.915	0.908
		AMI2	0.901	
		AMI3	0.913	
		AMI4	0.830	
Audit Technology Implementation (ATI)	30	ATI1	0.684	0.875
		ATI2	0.931	
		ATI3	0.913	
		ATI4	0.874	
Audit Skepticism Orientation (ASO)	30	ASO1	0.898	0.908
		ASO2	0.904	
		ASO3	0.836	
		ASO4	0.890	
		ASO5	0.793	
Audit Ethics Focus (AEF)	30	AEF1	0.895	0.924
		AEF2	0.953	
		AEF3	0.911	
		AEF4	0.923	
		AEF5	0.729	

Table 1E: Item Factor Loadings and Reliability Analyses in Pre-Test (continued)

Constructs	N	Items	Factor Loadings	Reliability (Alpha)
Audit Quality (AUQ)	30	AUQ1	0.871	0.908
		AUQ2	0.904	
		AUQ3	0.846	
		AUQ4	0.917	
Information Benefit Enhancement (IBE)	30	IBE1	0.844	0.897
		IBE2	0.923	
		IBE3	0.922	
		IBE4	0.808	
Information Reliability Increase (IRI)	30	IRI1	0.915	0.907
		IRI2	0.897	
		IRI3	0.806	
		IRI4	0.929	
Audit Survival Commitment (ASC)	30	ASC1	0.828	0.870
		ASC2	0.848	
		ASC3	0.916	
		ASC4	0.802	
Continuous Audit Improvement (CAI)	30	CAI1	0.854	0.866
		CAI2	0.900	
		CAI3	0.840	
		CAI4	0.785	
Audit Experience Diversity (AED)	30	AED1	0.881	0.917
		AED2	0.874	
		AED3	0.925	
		AED4	0.912	

Table 1E: Item Factor Loadings and Reliability Analyses in Pre-Test (continued)

Constructs	N	Items	Factor Loadings	Reliability (Alpha)
Technology Growth Development (TGD)	30	TGD1	0.773	0.881
		TGD2	0.910	
		TGD3	0.823	
		TGD4	0.926	
Stakeholder Pressure Intensity (SPI)		SPI1	0.859	0.901
		SPI2	0.858	
		SPI3	0.934	
		SPI4	0.873	
Knowledge Management Competency (KMC)	30	KMC1	0.830	0.867
		KMC2	0.852	
		KMC3	0.872	
		KMC4	0.832	
Sustainable Mindset (SUM)	30	SUM1	0.756	0.901
		SUM2	0.930	
		SUM3	0.922	
		SUM4	0.903	

APPENDIX F

Cover Letter and Questionnaire: Thai Version

แบบสอบถามเพื่อการวิจัย

เรื่อง “ผลกระทบความสามารถทางการสอบบัญชีอย่างมืออาชีพที่มีต่อประสิทธิผลทางการสอบบัญชี: หลักฐานเชิงประจักษ์จากผู้สอบบัญชีภาษีอากรในประเทศไทย”

<u>คำชี้แจง</u>

โครงการวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาวิจัยเรื่อง “ผลกระทบความสามารถทางการสอบบัญชีอย่างมืออาชีพที่มีต่อประสิทธิผลทางการสอบบัญชี: หลักฐานเชิงประจักษ์จากผู้สอบบัญชีภาษีอากรในประเทศไทย” เพื่อประกอบการศึกษาวิทยานิพนธ์ในระดับปริญญาเอกของผู้วิจัยในหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาการบัญชี คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม โทรศัพท์ 043-754333

ข้าพเจ้าใคร่ขอความอนุเคราะห์จากท่านผู้ตอบแบบสอบถาม ได้โปรดตอบแบบสอบถามชุดนี้ โดยรายละเอียดของแบบสอบถามประกอบด้วยส่วนคำถาม 6 ตอน ดังนี้

ตอนที่ 1 ข้อมูลทั่วไปเกี่ยวกับผู้สอบบัญชีภาษีอากรในประเทศไทย

ตอนที่ 2 ความคิดเห็นเกี่ยวกับความสามารถทางการสอบบัญชีอย่างมืออาชีพของผู้สอบบัญชีภาษีอากรในประเทศไทย

ตอนที่ 3 ความคิดเห็นเกี่ยวกับผลลัพธ์ของการสอบบัญชีของผู้สอบบัญชีภาษีอากรในประเทศไทย

ตอนที่ 4 ความคิดเห็นเกี่ยวกับปัจจัยภายในที่ส่งผลต่อความสามารถทางการสอบบัญชีอย่างมืออาชีพของผู้สอบบัญชีภาษีอากรในประเทศไทย

ตอนที่ 5 ความคิดเห็นเกี่ยวกับปัจจัยภายนอกที่ส่งผลต่อความสามารถทางการสอบบัญชีอย่างมืออาชีพของผู้สอบบัญชีภาษีอากรในประเทศไทย

ตอนที่ 6 ข้อคิดเห็นและข้อเสนอแนะเกี่ยวกับความสามารถทางการสอบบัญชีอย่างมืออาชีพของผู้สอบบัญชีภาษีอากร

คำตอบของท่านจะถูกเก็บรักษาเป็นความลับและจะไม่มีการใช้ข้อมูลใดๆ ที่เปิดเผยเกี่ยวกับตัวท่านในการรายงานข้อมูล รวมทั้งจะไม่มีการร่วมใช้ข้อมูลดังกล่าวกับบุคคลภายนอกอื่นใดโดยไม่ได้รับอนุญาตจากท่าน

ผู้วิจัยขอขอบพระคุณที่ท่านได้กรุณาเสียสละเวลาในการตอบแบบสอบถามชุดนี้อย่างถูกต้องครบถ้วนและหวังเป็นอย่างยิ่งว่าข้อมูลที่ได้รับจากท่านจะเป็นประโยชน์อย่างยิ่งต่อการวิจัยในครั้งนี้ และขอขอบพระคุณอย่างสูงมา ณ โอกาสนี้ หากท่านมีข้อสงสัยประการใดเกี่ยวกับแบบสอบถาม โปรดติดต่อผู้วิจัย นางสาวนันทิยา พรมทอง โทรศัพท์เคลื่อนที่ 081-0562498 หรือ E–mail: nantiya207@gmail.com

(นางสาวนันทิยา พรมทอง)
นิสิตปริญญาเอก สาขาวิชาการบัญชี
คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม

<u>ตอนที่ 1</u> ข้อมูลทั่วไปเกี่ยวกับผู้สอบบัญชีภาษีอากรในประเทศไทย

1. เพศ

❑ ชาย ❑ หญิง

2. อายุ

❑ น้อยกว่า 30 ปี ❑ 30 -35 ปี

❑ 36 – 40 ปี ❑ มากกว่า 40 ปี

3. สถานภาพ

❑ โสด ❑ สมรส

❑ หย่าร้าง/หม้าย

4. ระดับการศึกษา

❑ ปริญญาตรี ❑ สูงกว่าปริญญาตรี

5. ประสบการณ์ในการทำงานด้านการสอบบัญชี

❑ น้อยกว่า 5 ปี ❑ 5-10 ปี

❑ 11 - 15 ปี ❑ มากกว่า 15 ปี

6. ระยะเวลาที่เป็นผู้สอบบัญชีภาษีอากร

❑ น้อยกว่า 5 ปี ❑ 5-10 ปี

❑ 11 - 15 ปี ❑ มากกว่า 15 ปี

7. รายได้เฉลี่ยต่อเดือน

❑ ต่ำกว่า 100,000 บาท ❑ 100,000 - 125,000 บาท

❑ 125,001 - 150,000 บาท ❑ มากกว่า 150,000 บาท

8. จำนวนกิจการที่รับตรวจสอบบัญชี

❑ น้อยกว่า 50 กิจการ ❑ ระหว่าง 50 – 100 กิจการ

❑ ระหว่าง 101 – 150 กิจการ ❑ มากกว่า 150 กิจการ

9. ท่านเป็นผู้สอบบัญชีรับอนุญาต

❑ ใช่ ❑ ไม่ใช่

<u>ตอนที่ 2</u> ความคิดเห็นเกี่ยวกับความสามารถทางการสอบบัญชีอย่างมืออาชีพของผู้สอบบัญชีภาษีอากรในประเทศไทย

ความสามารถทางการสอบบัญชีอย่างมืออาชีพ	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
ศักยภาพในการเรียนรู้ทางการสอบบัญชี (Audit Learning Capability) 1. ท่านเชื่อมั่นว่าการเรียนรู้ทางการสอบบัญชีที่ดี จะช่วยทำให้มีพื้นฐานการปฏิบัติงานที่มีศักยภาพและสามารถนำมาใช้งานได้เป็นอย่างดี					
2. ท่านสอบทานงานและตรวจสอบกระดาษทำการในอดีตอยู่เสมอ ซึ่งจะช่วยให้มีการวิเคราะห์และวางแผนการสอบบัญชีที่มีประสิทธิภาพมากยิ่งขึ้น					
3. ท่านสังเคราะห์และวิเคราะห์ข้อผิดพลาดที่ตรวจพบในอดีตอยู่เสมอ ซึ่งจะช่วยให้มีการเพิ่มความระมัดระวังและรอบคอบในการตรวจสอบมากยิ่งขึ้น					
4. ท่านวิเคราะห์และเชื่อมโยงสาเหตุ ปัญหาและผลลัพธ์ที่เกิดขึ้นในการปฏิบัติงานสอบบัญชีอย่างเป็นระบบอยู่เสมอ ซึ่งจะช่วยให้การปฏิบัติงานการสอบบัญชีมีประสิทธิภาพมากยิ่งขึ้น					
การบูรณาการวิธีการสอบบัญชี (Audit Method Integration) 5. ท่านเชื่อมั่นว่าการผสมผสานวิธีการในการตรวจสอบบัญชีที่หลากหลายจะช่วยให้การปฏิบัติงานสอบบัญชีมีประสิทธิภาพมากยิ่งขึ้น					
6. ท่านผสมผสานเทคนิคการตรวจสอบบัญชีร่วมกันอย่างเป็นระบบ ซึ่งจะช่วยลดความซ้ำซ้อนของขั้นตอนในการปฏิบัติงานและเพิ่มศักยภาพในการสอบบัญชีให้เกิดประโยชน์สูงสุด					
7. ท่านเชื่อมโยงวิธีการที่สัมพันธ์และสอดคล้องกันเข้าด้วยกันอย่างเป็นระบบ ซึ่งจะทำให้ได้หลักฐานการสอบบัญชีที่ถูกต้องและน่าเชื่อถือมากยิ่งขึ้น					
8. ท่านเชื่อมโยงแหล่งข้อมูลในการสอบบัญชีทั้งจากลูกค้า ผู้สอบบัญชีอื่นและหน่วยงานอื่นที่เกี่ยวข้องเข้าด้วยกันอย่างเป็นระบบ จะทำให้ได้มาซึ่งหลักฐานการสอบบัญชีที่เพียงพอและเหมาะสมมากยิ่งขึ้น					
การประยุกต์ใช้เทคโนโลยีทางการสอบบัญชี (Audit Technology Implementation) 9. ท่านเชื่อมั่นว่าการประยุกต์ใช้เทคโนโลยีในการสอบบัญชีอย่างเป็นระบบจะช่วยให้การปฏิบัติงานสอบบัญชีมีประสิทธิภาพและประสิทธิผลมากขึ้น					

ตอนที่ 2 (ต่อ)

ความสามารถทางการสอบบัญชีอย่างมืออาชีพ	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
10. ท่านประยุกต์ใช้คอมพิวเตอร์และเทคโนโลยีสารสนเทศต่างๆ ที่เกี่ยวข้องในการปฏิบัติงานอย่างเป็นระบบ ซึ่งจะทำให้ได้ข้อมูลหลักฐานที่ครอบคลุม รอบด้านและทันสมัยมากยิ่งขึ้น					
11. ท่านใช้คอมพิวเตอร์ในการช่วยคำนวณและวิเคราะห์ข้อมูลในการตรวจสอบ ซึ่งจะทำให้ได้หลักฐานที่ถูกต้องและน่าเชื่อถือมากยิ่งขึ้น					
12. ท่านจัดทำฐานข้อมูลงานสอบบัญชีจากอดีตถึงปัจจุบันอย่างเป็นระบบและเป็นรูปธรรม ซึ่งจะช่วยให้การเรียกใช้ข้อมูลมีประสิทธิภาพมากขึ้น					
การมุ่งเน้นใช้วิจารณญาณทางการสอบบัญชี (Audit Skepticism Orientation) 13. ท่านเชื่อมั่นว่าการใช้วิจารณญาณทางการสอบบัญชีที่ดีจะช่วยให้บรรลุวัตถุประสงค์การตรวจสอบได้ดียิ่งขึ้น					
14. ท่านตั้งข้อสังเกตเกี่ยวกับประเด็นต่างๆ ที่สำคัญก่อนการตัดสินใจวางแผนการปฏิบัติงานตรวจสอบอยู่เสมอ ซึ่งจะทำให้สามารถวางแผนการตรวจสอบให้สอดคล้องกับระดับความมีสาระสำคัญและลักษณะความเสี่ยงของลูกค้าแต่ละรายได้อย่างเหมาะสม					
15. ท่านประเมินสถานการณ์ความไม่แน่นอนจากปัจจัยทั้งภายนอกและภายในที่อาจมีผลกระทบต่อการปฏิบัติงานตรวจสอบอย่างต่อเนื่อง ซึ่งจะทำให้สามารถปรับเปลี่ยนวิธีการปฏิบัติงานให้สอดคล้องกับสถานการณ์ได้อย่างเหมาะสมยิ่งขึ้น					
16. ท่านทบทวน ตั้งข้อสังเกตและสงสัยเกี่ยวกับความครบถ้วน เพียงพอและถูกต้องของหลักฐานและข้อสรุปที่ได้จากการตรวจสอบอยู่เสมอเพื่อให้แน่ใจว่าได้ทำการตรวจสอบอย่างครอบคลุมในทุกกิจกรรมของลูกค้า					
17. ท่านนำข้อสังเกตจากการตรวจสอบไปค้นหาข้อมูลเพิ่มเติมจนกว่าจะได้รับหลักฐานที่เพียงพอและสมเหตุสมผลอยู่เสมอเพื่อให้มั่นใจว่าการสรุปผลการตรวจสอบมีความถูกต้องและเหมาะสมกับสถานการณ์ในปัจจุบันของลูกค้าอย่างดีที่สุด					
การให้ความสำคัญกับจริยธรรมทางการสอบบัญชี (Audit Ethics Focus) 18. ท่านเชื่อมั่นว่าการยึดมั่นในหลักจริยธรรมในการสอบบัญชีอย่างเคร่งครัด จะทำให้การปฏิบัติงานตรวจสอบบัญชีมีคุณภาพและได้รับการยอมรับจากผู้มีส่วนได้เสียที่เกี่ยวข้อง					

ตอนที่ 2 (ต่อ)

ความสามารถทางการสอบบัญชีอย่างมืออาชีพ	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
19. ท่านปฏิบัติงานตามกฎหมาย มาตรฐานและระเบียบที่เกี่ยวข้องและเปิดเผยข้อมูลตามที่กฎหมายและวิชาชีพกำหนดอย่างเคร่งครัด จะทำให้ผลการตรวจสอบมีความน่าเชื่อถือ ถูกต้องและมีประโยชน์ต่อผู้มีส่วนได้เสียทุกกลุ่มอย่างเท่าเทียม					
20. ท่านปฏิบัติงานและรายงานผลการสอบบัญชีอย่างเป็นกลาง ไม่ลำเอียงโดยไม่นำเรื่องส่วนตัวมาเกี่ยวข้องในการตัดสินใจในประเด็นต่างๆ ที่เกี่ยวข้องกับการปฏิบัติงานสอบบัญชี ซึ่งจะทำให้เกิดความโปร่งใสในการปฏิบัติงานและสรุปผลอย่างตรงไปตรงมา					
21. ท่านใช้ข้อมูลที่ได้มาระหว่างการปฏิบัติงานอย่างรอบคอบ รวมถึงปกป้องและเก็บรักษาความลับของลูกค้าอย่างเข้มงวด ซึ่งจะทำให้ได้รับการยอมรับจากผู้มีส่วนเกี่ยวข้องทุกฝ่าย					
22. ท่านปฏิบัติงานตรวจสอบเฉพาะในงานส่วนที่ท่านมีความรู้ทักษะและประสบการณ์ในงานส่วนนั้นอย่างแท้จริง ซึ่งจะทำให้สามารถตอบสนองความต้องการของลูกค้าได้ดียิ่งขึ้น					

ตอนที่ 3 ความคิดเห็นเกี่ยวกับผลลัพธ์ของการสอบบัญชีของผู้สอบบัญชีภาษีอากรในประเทศไทย

ผลลัพธ์ของการสอบบัญชี	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
คุณภาพการสอบบัญชี (Audit Quality) 1. ท่านพบและรายงานให้ทราบถึงการทุจริตและข้อผิดพลาดที่มีสาระสำคัญต่องบการเงินของลูกค้าได้อย่างตรงไปตรงมา					
2. ท่านพบและรายงานให้ทราบถึงความเสี่ยงและความไม่แน่นอนที่อาจจะเกิดขึ้นในข้อมูลทางการเงินของลูกค้าได้อย่างสมเหตุสมผล					
3. ท่านรายงานผลการตรวจสอบงบการเงินที่สะท้อนให้เห็นถึงผลการดำเนินงานเชิงเศรษฐกิจที่แท้จริงของกิจการได้อย่างถูกต้องเชื่อถือได้และทันเวลา					
4. ท่านนำเสนอข้อมูลและประเด็นสำคัญที่พบจากการตรวจสอบที่ผู้มีส่วนได้เสียควรให้ความสนใจในรายงานทางเงินของกิจการอย่างชัดเจนและโปร่งใส					

ตอนที่ 3 (ต่อ)

ผลลัพธ์ของการสอบบัญชี	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
การเพิ่มประโยชน์ของข้อมูล(Information Benefit Enhancement) 5. ท่านนำเสนอข้อมูลที่เน้นเนื้อหาเชิงเศรษฐกิจมากกว่ารูปแบบทางกฎหมาย					
6. ท่านนำเสนอข้อมูลที่เป็นการส่งสัญญาณเตือนภัยได้อย่างเพียงพอต่อการประเมินความเสี่ยงที่อาจเกิดขึ้น					
7. ท่านนำเสนอข้อมูลที่สามารถประเมินสภาพการณ์และทิศทางการดำเนินงานในอนาคตของลูกค้าได้อย่างชัดเจนและเป็นเหตุเป็นผล					
8. ท่านนำเสนอข้อมูลสำคัญที่น่าสนใจได้อย่างละเอียด ครอบคลุมและเข้าใจง่าย					
การเพิ่มความน่าเชื่อถือของข้อมูล (Information Reliability Increase) 9. ท่านนำเสนอข้อมูลผลการตรวจสอบตามข้อเท็จจริงที่ปรากฏ โดยแสดงข้อสังเกตและหลักฐานอ้างอิงที่สามารถระบุถึงที่มาที่ไปได้อย่างชัดเจน					
10. ท่านนำเสนอข้อมูลความไม่ถูกต้องของรายการที่ขัดต่อมาตรฐานการบัญชีได้อย่างโปร่งใสตรงไปตรงมา ซึ่งสามารถอ้างอิงหลักฐานที่ถูกต้องตรงกันจากแหล่งข้อมูลที่ต่างกันได้อย่างชัดเจน					
11. ท่านนำเสนอข้อมูลที่สะท้อนให้เห็นถึงสภาพความเป็นจริงของการดำเนินธุรกิจของลูกค้าได้อย่างดีที่สุด ซึ่งมีกระบวนการ ขั้นตอน และการปฏิบัติงานสอบบัญชีที่ชัดเจนและตรวจสอบได้					
12. ท่านนำเสนอข้อมูลที่มีสาระสำคัญอย่างชี้ชัด หนักแน่นและสมเหตุสมผล ซึ่งสามารถตรวจสอบและยืนยันแหล่งที่มาของข้อมูลได้อย่างชัดเจน					
ประสิทธิผลทางการสอบบัญชี (Audit Effectiveness) 13. ท่านสามารถปฏิบัติงานสอบบัญชีได้ดีกว่าเป้าหมายที่กำหนดไว้					
14. ท่านรักษาลูกค้ารายเดิมได้อย่างต่อเนื่องและมีลูกค้ารายใหม่เพิ่มขึ้นอย่างเห็นได้ชัด					
15. ท่านได้รับความเชื่อถือจากผู้มีส่วนได้เสียทุกฝ่ายในด้านการปฏิบัติงานสอบบัญชีอย่างตรงไปตรงมา					
16. ท่านได้รับการยอมรับในวงการวิชาชีพสอบบัญชีว่าปฏิบัติงานสอบบัญชีเยี่ยงมืออาชีพได้อย่างโดดเด่นและเห็นได้ชัด					

<u>ตอนที่ 4</u> ความคิดเห็นเกี่ยวกับปัจจัยภายในที่ส่งผลต่อความสามารถทางการสอบบัญชีของผู้สอบบัญชีภาษีอากรในประเทศไทย

ปัจจัยภายในที่ส่งผลต่อความสามารถทางการสอบบัญชี	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
ความผูกพันต่อการอยู่รอดทางการสอบบัญชี (Audit Survival Commitment) 1. ท่านมุ่งมั่นที่จะปฏิบัติงานสอบบัญชีโดยคำนึงถึงความต้องการและความคาดหวังของผู้มีส่วนได้เสียทุกฝ่ายเป็นหลัก					
2. ท่านตั้งใจที่จะปฏิบัติงานสอบบัญชีด้วยความรู้ความสามารถที่มีอย่างเต็มที่					
3. ท่านยึดมั่นในการปฏิบัติงานตามหลักการและมาตรฐานทางวิชาชีพที่ยอมรับทั่วไปอย่างเข้มงวด					
4. ท่านทุ่มเทความพยายามในการพัฒนาความรู้ความสามารถและทักษะในการปฏิบัติงานอย่างเต็มที่					
การพัฒนาการสอบบัญชีอย่างต่อเนื่อง (Continuous Audit Improvement) 5. ท่านเข้าร่วมการฝึกอบรมสัมมนาเพื่อพัฒนาความรู้และทักษะทางด้านการบัญชีและการปฏิบัติงานสอบบัญชีอย่างสม่ำเสมอ					
6. ท่านศึกษาค้นคว้าข้อมูลและติดตามข่าวสารต่างๆ ที่อาจจะมีผลกระทบต่อการปฏิบัติงานสอบบัญชีรวมถึงนโยบายของหน่วยงานที่เกี่ยวข้องอย่างต่อเนื่อง					
7. ท่านปรึกษาหารือประเด็นปัญหาและข้อปฏิบัติงานต่างๆ ที่เกี่ยวข้องกับงานสอบบัญชีกับผู้สอบบัญชีอื่นๆ หน่วยงานวิชาชีพและหน่วยงานอื่นๆ อยู่เป็นประจำ					
8. ท่านศึกษาและตีความประเด็นที่น่าสนใจใหม่ๆ ทางการสอบบัญชีและการบัญชีที่เกี่ยวข้องอยู่เสมอ					
ความหลากหลายของประสบการณ์ทางการสอบบัญชี (Audit Experience Diversify) 9. ท่านนำประสบการณ์ที่หลากหลายที่ดีในอดีต มาใช้เป็นแนวทางในการปฏิบัติงานสอบบัญชีในปัจจุบัน					
10. ท่านบูรณการความรู้ความเข้าใจที่หลากหลายในประเภทและอุตสาหกรรมของธุรกิจที่ท่านเคยตรวจสอบ มาประยุกต์ใช้ในการปฏิบัติงานในปัจจุบัน					

ตอนที่ 4 (ต่อ)

ปัจจัยภายในที่ส่งผลต่อความสามารถทางการสอบบัญชี	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
11. ท่านนำข้อบกพร่องต่างๆ ที่ตรวจพบในอดีต มาพัฒนาและปรับปรุงการปฏิบัติงานสอบบัญชีอยู่เสมอ					
12. ท่านศึกษาและวิเคราะห์ความสำเร็จและความผิดพลาดในอดีตมาพัฒนาการปฏิบัติงานสอบบัญชีให้มีประสิทธิภาพมากยิ่งขึ้น					
ความเชื่อในการดำรงอยู่ของวิชาชีพ (Sustainable Mindset) 13. ท่านเชื่อมั่นว่าวิชาชีพการสอบบัญชีเป็นวิชาชีพที่มีเกียรติเป็นที่ยอมรับจากสาธารณชนและสังคม					
14. ท่านศรัทธาในวิชาชีพสอบบัญชีว่าเป็นวิชาชีพที่จะก่อให้เกิดประโยชน์อย่างมากต่อผู้มีส่วนได้เสีย					
15. ท่านตระหนักและเห็นคุณค่าในบทบาท หน้าที่และความรับผิดชอบของวิชาชีพว่าเป็นสิ่งที่มีความสำคัญต่อระบบเศรษฐกิจ					
16. ท่านมั่นใจในศักยภาพของวิชาชีพว่าจะสามารถตอบสนองความต้องการของผู้มีส่วนได้เสียได้อย่างดี					
ความสามารถในการจัดการความรู้ (Knowledge Management Competency) 17. ท่านถ่ายทอดความรู้ด้านการบัญชี การสอบบัญชีรวมถึงการบริหารจัดการทรัพยากรในการตรวจสอบที่ดีกับเพื่อนร่วมงานและผู้สอบบัญชีอื่นๆ					
18. ท่านแลกเปลี่ยนทักษะ เทคนิคในการปฏิบัติงานและการแก้ไขปัญหาการปฏิบัติงานตรวจสอบอย่างต่อเนื่อง					
19. ท่านแบ่งปันข้อมูล ข้อค้นพบและข้อผิดพลาดร่วมกับผู้สอบบัญชีอื่นๆ อยู่เสมอ					
20. ท่านระดมความคิด ปรึกษาหารือ และถกเถียงประเด็นที่สำคัญที่พบในการตรวจสอบอย่างต่อเนื่อง					

<u>ตอนที่ 5</u> ความคิดเห็นเกี่ยวกับปัจจัยภายนอกที่ส่งผลต่อความสามารถในการสอบบัญชีของผู้สอบบัญชีภาษีอากรในประเทศไทย

ปัจจัยภายนอกที่ส่งผลต่อความสามารถทางการสอบบัญชี	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
การเติบโตของการพัฒนาด้านเทคโนโลยี (Technology Development Growth) 1. เทคโนโลยีด้านต่างๆ มีการเปลี่ยนแปลงและพัฒนาอย่างต่อเนื่อง ทำให้ผู้สอบบัญชีต้องศึกษาและเรียนรู้ให้สามารถนำมาประยุกต์ใช้ในการปฏิบัติงานได้อย่างดียิ่งขึ้น					
2. โปรแกรมทางการบัญชีและโปรแกรมการตรวจสอบบัญชีมีการเปลี่ยนแปลงที่ทันสมัยมากขึ้น ทำให้ผู้สอบบัญชีสามารถประยุกต์ใช้ให้เหมาะสมกับสภาพแวดล้อมในการตรวจสอบได้ดียิ่งขึ้น					
3. การเปลี่ยนแปลงรูปแบบการจัดเก็บข้อมูลแบบอิเล็กทรอนิกส์ของลูกค้าที่มากขึ้น ทำให้ผู้สอบบัญชีต้องแสวงหาความรู้และทำความเข้าใจเพื่อเพิ่มประสิทธิภาพในการเข้าถึงข้อมูลที่ดียิ่งขึ้น					
4. ความก้าวหน้าทางเทคโนโลยีที่เกิดขึ้นทั้งในด้านฮาร์ดแวร์และซอฟแวร์ ทำให้ผู้สอบบัญชีสามารถเลือกใช้ให้สอดคล้องกับลักษณะงานที่ตรวจสอบได้อย่างเหมาะสมมากขึ้น					
ความเข้มข้นของแรงกดดันของผู้มีส่วนได้เสีย (Stakeholder Pressure Intensity) 5. ลูกค้ามีความคาดหวังต่อคุณภาพการสอบบัญชีที่สูงขึ้น ทำให้ผู้สอบบัญชีต้องศึกษาแนวทางการปฏิบัติงานเพื่อตอบสนองความคาดหวังและถูกต้องตามมาตรฐานวิชาชีพได้ดียิ่งขึ้น					
6. ผู้สอบบัญชีมีจำนวนเพิ่มมากขึ้น ทำให้ผู้สอบบัญชีต้องพัฒนาความรู้และทักษะในการปฏิบัติงานอยู่เสมอเพื่อรองรับความต้องการของลูกค้า					
7. สภาวิชาชีพและหน่วยงานกำกับดูแลที่เกี่ยวข้องมีการบังคับใช้กฎระเบียบ ข้อบังคับและมาตรฐานวิชาชีพใหม่ๆอย่างต่อเนื่อง ทำให้ผู้สอบบัญชีต้องศึกษาและทำความเข้าใจ เพื่อนำมาพัฒนาวิธีการปฏิบัติงานให้มีประสิทธิภาพมากยิ่งขึ้น					
8. ผู้ใช้รายงานทางการเงินและสังคมให้ความสำคัญกับผลการสอบบัญชีที่สามารถเตือนภัยถึงโอกาสที่จะเกิดการทุจริตหรือฉ้อฉลของกิจการ ทำให้ผู้สอบบัญชีต้องมุ่งเน้นการปฏิบัติงานสอบบัญชีเยี่ยงมืออาชีพอยู่เสมอ					

<u>ตอนที่ 6</u> ข้อคิดเห็นและข้อเสนอแนะเกี่ยวกับความสามารถทางการสอบบัญชีอย่างมืออาชีพ ของผู้สอบบัญชีภาษีอากร

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ขอขอบพระคุณท่านที่ได้กรุณาสละเวลาตอบแบบสอบถามทุกข้อ ได้โปรดพับแบบสอบถามและใส่ซองที่แนบมาพร้อมนี้ ส่งคืนตามที่อยู่ที่ระบุ

APPENDIX G

Questionnaire: English Version

Questionnaire to the Ph. D. Dissertation Research
"Effects of Professional Audit Proficiency on Audit Effectiveness:
An Empirical Evidence from Tax Auditors in Thailand"

Dear Sir,

This research is a part of a doctoral dissertation of Miss Nantiya Promtong at the Mahasarakham Business School, Mahasarakham University, Thailand. The objective of this research is to examine the effects of professional audit proficiency on audit effectiveness of tax auditors in Thailand. The questionnaire is divided into 6 Section.

Section 1: Personal information about tax auditors in Thailand,

Section 2: Opinion on professional audit proficiency of tax auditors in Thailand,

Section 3: Opinion on audit outcomes of tax auditors in Thailand,

Section 4: Opinion on internal environmental factors affects professional audit proficiency of tax auditors in Thailand,

Section 5: Opinion on external environmental factors affects professional audit proficiency of tax auditors in Thailand,

Section 6: Recommendations and suggestions about professional audit proficiency of tax auditors in Thailand

Your answer will be kept as confidentiality, and your information will not be shared with any outside party without your permission.

Thank you for your time answering all the questions. I do not doubt that your answer will provide valuable information for academic advancement. If you have any questions concerning this research, please contact me directly.

Sincerely yours,

(Nantiya Promtong)
Ph.D. Student
Mahasarakham Business School
Mahasarakham University, Thailand

Contact Info:
Cell phone: 081-0562498
E-mail: nantiya207@gmail.com

Section 1 Personal information about tax auditors in Thailand

1. Gender

❑ Male ❑ Female

2. Age

❑ Less than 30 years ❑ 30-35 years

❑ 36-40 years ❑ More than 40 years

3. Marital Status

❑ Single ❑ Married

❑ Divorced

4. Education Level

❑ Bachelor's degree ❑ Higher than bachelor's degree

5. Length of Audit Tenure

❑ Less than 5 years ❑ 5-10 years

❑ 11-15 years ❑ More than 15 years

6. The Period in a Tax Auditor Certificate Holders'

❑ Less than 5 years ❑ 5-10 years

❑ 11-15 years ❑ More than 15 years

7. Average Monthly Income

❑ Less than 100,000 Baht ❑ 100,000 – 125,000 Baht

❑ 125,001 – 150,000 Baht ❑ More than 150,000 Baht

8. Number of Asserted Financial Statements per Year

❑ Less than 50 enterprise's ❑ 50 -100 enterprise's

❑ 101 – 150 enterprise's ❑ More than 150 enterprise's

9. CPA Professional Certification

❑ Yes ❑ No

Section 2 Opinion on professional audit proficiency of tax auditors in Thailand

Professional Audit Proficiency	Levels of Agreement				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Audit Learning Capability 1. I believe that learning in the audit provides a foundation knowledge to perform the audit and allows to performing the audit more effectively.					
2. I reviewed and proved of prior audit working papers to guide for current analysis and planning in audit work more efficient.					
3. I always synthesize and analyze about errors discovered that helps to raise the deliberate in audit more.					
4. I analyze and link about audit causes, problems, and results systematically that help to operating an audit effectively.					
Audit Method Integration 5. I believe that the several audit method linkage can help audit operation efficiently more.					
6. I combine audit techniques systematic that can reduce duplication of audit steps and enhance audit capability to greater performance.					
7. I link audit methods which are similar and equal systematically that help obtains an accurate and reliable of audit evidence even more.					
8. I link the source of data in audit both of clients, others auditor, and related agencies systematically that help obtains a sufficient and suitable audit evidence even more.					

Section 2 (Continued)

Professional Audit Proficiency	Levels of Agreement				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Audit Technology Implementation 9. I believe that apply technologies in audit work systematically can help to do audit activities effective and efficient more.					
10. I apply computer and related information technologies in audit work systematically which helps obtained audit evidence thoroughly and up-to-date even more.					
11. I use a computer to calculate and data analysis in audit work that helps obtain an accurate and reliable of audit evidence even more.					
12. I create audit database are systematically and substantial that helps effectively to retrieve data.					
Audit Skepticism Orientation 13. I believe that the application of doubtful in the audit process as normal to help to reach audit objectives well.					
14. I have a suspecting of vital issues before setting audit plan that can make audit planning accord with the level of materiality and each client's risk appropriately.					
15. I focus on the assessment of uncertainties both internal and external factor that may affect the performing of audit continues to help suitable modify audit procedures according to the situation.					

Section 2 (Continued)

Professional Audit Proficiency	Levels of Agreement				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
16. I focus on reviewing and questioning about the completeness, adequacy, and correctness of audit evidence and conclusion to assure that audit activities cover clients' transactions.					
17. I normally bring an observation to searching for more information on obtaining a sufficient and reasonable evidence to confident to a proper conclusion with existing client's situation.					
Audit Ethics Focus 18. I believe in adhering to principle audit ethics extremely that makes the audit performance be good quality and accept by stakeholders.					
19. I perform an audit comply with regulates conduct and accounting standard, and disclose information according to laws and related profession rules extremely that make results of an audit are reliable, accurate, and beneficial to all stakeholders equally.					
20. I operate and report audit results based on unbiased without personal interest when deciding on vital issues that lead to straightforwardly operation and conclusion.					
21. I take precaution to use of internal data along with kept as confidentiality substantially that make earned acceptance by stakeholders.					
22. I only perform duties in part of I have knowledge, skills, and experience that helps to respond customer's needs even more.					

Section 3 Opinion on audit outcomes of tax auditors in Thailand

Audit Outcomes	Levels of Agreement				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Audit Quality 1. I have detected and reported the detected of essence frauds and defects of an audited firm honestly.					
2. I have detected and presented the risk and uncertainty information of audited firm reasonably.					
3. I have reported the results of the audit of financial statements that reflect the economic performance of the business accurately and reliably.					
4. I have reported audit results both financial information and significant issues which are stakeholders should take an interest clearly.					
Information Benefit Enhancement 5. I have presented information that emphasized on substance over form.					
6. I have sent warning signals to the parties that sufficient for potential risk evaluate.					
7. I have presented information that helps to predict circumstances and direction of client's future operation clearly and reasonably.					
8. I have presented an important information meticulous, cover and understood easily.					

Section 3 **(Continued)**

Audit Outcomes	Levels of Agreement				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Information Reliability Increase 9. I have presented data based on truthfulness by indicated remark and referable evidence that can mention obviously.					
10. I have presented data about incorrectness transactions which is in conflict with standards straightforwardly by correctly reference from sources of audit evidence differently.					
11. I have presented data to demonstrate the actual performance of the firm under the clear and provable process, steps, and methods of the audit.					
12. I have presented significant data certainly and reasonably which can prove and assure about data source clearly.					
Audit Effectiveness 13. I can work beyond my audit goal.					
14. I retain old customers to use the audit services continually and have new customers increased obviously.					
15. I earned believability from stakeholders in term of openly perform.					
16. I have earned the acceptance of audit profession that I perform like a professional auditor dominantly and obviously.					

Section 4 Opinion on internal environmental factors affect professional audit proficiency of tax auditors in Thailand

Internal Environmental	Levels of Agreement				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Audit Survival Commitment 1. I focus on audit operation taking into consideration of all stakeholders' needs.					
2. I commit to doing an auditing with all capability.					
3. I adhere to allow on principles and general auditing standards strictly.					
4. I attempt to develop knowledge and skills extremely.					
Continuous Audit Improvement 5. I focus in attending to training, seminars, and knowledge development continuously helps to develop knowledge and skills of accounting and auditing practice even more.					
6. I commit to education, research, and following related information that may affect the audit operations, including related policies continuously.					
7. I have to consult problem and operational issues related to the audit engagement with other auditors, profession agency, and other agencies always.					
8. I educate and interpreting new auditing issues and related accounting changes regularly.					

Section 4 (Continued)

Internal Environmental	Levels of Agreement				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Audit Experience Diversity 9. I focus on bringing the different kinds of good experience to be guidance for operation in a present task.					
10. I focus on an integration of knowledge and understanding the diverse types of businesses and industries that I have audited in the past bring to adapt for present operation.					
11. I focus on bring flaws detected in the past to develop and improve the audit operation always.					
12. I focus on the study and analysis about of success and error in the past to bring the information for developing audit operation more efficient.					
Sustainable Mindset 13. I believe that audit profession is a prestigious profession and public acceptance.					
14. I have faith in audit profession as to build an ultimate benefit for stakeholders.					
15. I have an awareness and appreciation of role, obligation, and responsibility of profession as a significant part of economics system.					
16. I am confident in a capacity of audit profession that can respond to public need well.					

Section 4 (Continued)

Internal Environmental	Levels of Agreement				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Knowledge Management Competency 17. I teach the knowledge of accounting and auditing including audit resources management with colleagues and others auditor.					
18. I exchange audit skills, techniques, methods of the problem- solving continually.					
19. I share data, finding, and mistake with other auditors invariably.					
20. I always brainstorm, discuss, and dispute about the vital audit issues.					

Section 5 Opinion on external environmental factors affect professional audit proficiency of tax auditors in Thailand

External Environmental	Levels of Agreement				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Technology Development Growth 1. Various technology is constantly evolving and changing that make auditor have to search and learn to apply technologies in audit operation better.					
2. Accounting program and auditing program are modern growing that makes auditor apply to a suitable situation is even more.					

Section 5 (Continued)

External Environmental	Levels of Agreement				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
3. The development of client's electronic data storage occurs steadily from which auditors must be searching and understanding to optimize the data access even more.					
4. Advances in technology both of hardware and software help auditors can select the use of technology in line with the current audit engagements more appropriately.					
Stakeholder Pressure Intensity 5. Customers expect the quality of audit to be greater make the auditors must learning about audits' guidance to help to respond customers' needs and based on profession regulations more.					
6. As auditor has a lot, auditors must commonly develop knowledge and capabilities of performance for reserving customer's need.					
7. Audit profession agencies and related agencies have enforcing new rules, regulations, and professional standards more continual that make auditor have to learn and understanding and bring to develop most audit work well.					
8. Users and public emphasize the result of an audit should signaling the red flag sign about a chance of fraud or cheat of the company make the auditor must a commitment to a professional operation more.					

Section 6 Recommendations and suggestions about professional audit proficiency of tax auditors in Thailand

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Thank you for your time answering all the questions

APPENDIX H

Letters to the Experts

ด่วนมาก

บันทึกข้อความ

หน่วยงาน คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม โทรศัพท์ 043-754333-3431 Fax 043- 754422

ที่ ศธ.0530.10/ **วันที่** 23 พฤษภาคม 2560

เรื่อง ขอเรียนเชิญเป็นผู้เชี่ยวชาญตรวจสอบเครื่องมือวิจัย

เรียน ผู้ช่วยศาสตราจารย์ ดร.เกสินี หมื่นไธสง

ด้วย นางสาวนันทิยา พรมทอง นิสิตระดับปริญญาเอก หลักสูตรปรัชญาดุษฎีบัณฑิต (ปร.ด.) สาขาวิชาการบัญชี คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม กำลังศึกษาวิทยานิพนธ์ เรื่อง "ผลกระทบความสามารถทางการสอบบัญชีอย่างมืออาชีพที่มีต่อประสิทธิผลทางการสอบบัญชี: หลักฐานเชิงประจักษ์จากผู้สอบบัญชีภาษีอากรในประเทศไทย" ซึ่งเป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปรัชญาดุษฎีบัณฑิต ดังนั้น เพื่อให้การดำเนินการเป็นไปด้วยความเรียบร้อยและบรรลุตามวัตถุประสงค์ คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม จึงใคร่ขอความอนุเคราะห์ท่านเป็นผู้เชี่ยวชาญตรวจสอบเครื่องมือวิจัยและข้อเสนอแนะเพื่อนำข้อมูลที่ได้ไปดำเนินการทำวิทยานิพนธ์ต่อไป ตามเอกสารแนบท้าย

จึงเรียนมาเพื่อโปรดพิจารณา

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สำเนา

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เรื่อง ขอเรียนเชิญเป็นผู้เชี่ยวชาญตรวจสอบเครื่องมือวิจัย

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RESEARCH

Promtong, N. and Ussahawanitchakit, P. (2016). Professional learning and audit success: An empirical researchof Certified Public Accountants (CPAs) in Thailand. *The Business & Management Review*, 7(5), 508-514.