INTERNAL AUDIT INTELLIGENCE ORIENTATION AND FIRM VALUE: AN EMPIRICAL INVESTIGATION OF LISTED FIRMS IN THAILAND

BY

SATIYA KLINSUKHON

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

March 2018

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The examining committee has unanimously approved this dissertation, submitted by Miss Satiya Klinsukhon, as a partial fulfillment of the requirements for the degree of the Doctor of Philosophy in Accounting at Mahasarakham University.

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ABSTRACT

In today as world, the challenge of the internal audit role is complicated by changesin the business environment. Internal audit leaders are making strides toward intelligence in demonstrating business acumen, technical expertise, and relationship skills to be an invaluable resource in furthering the organization's governance, risk management, and strategic objectives. This research aims to investigate the relationship of internal audit intelligence orientation which has five dimensions: dynamic internal audit planning, internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency on internal audit outcomes that are including: operational risk protection, financial information reliability, organizational expenditure reduction, goal achievement, and firm value. Moreover, this research examines the relationships among operational risk protection, financial information reliability, and organizational expenditure reduction as to goal achievement, and investigates the relationship between goal achievement and firm value. Furthermore, the influences of five antecedentson internal audit intelligence orientation are also investigated and the moderating effect as governance culture is also examined as to the relationship between antecedents and internal audit intelligence orientation. There are nineteen hypotheses proposed for testing by employing Ordinary Least Squares (OLS) regression analysis. The data were collected by using questionnaires from 134 listed firms in Thailand.Internal audit directors or internal audit managers are key informants.

The evidence highlights that internal audit innovation orientation has the strongest positive significance for internal audit outcome. Dynamic internal audit

planning has a positively significant effect on financial information reliability and goal achievement. In the same vein, internal audit method integration has a positively significant effect on operational risk protection, financial information reliability, goal achievement and firm value. Furthermore, technology-based internal audit and internal audit skepticism competency have a positively significant effect on operational risk protectionand organizational expenditure reduction. In addition, operational risk protection, financial information reliability, and organizational expenditure reduction have a positively significant effect on goal achievement, and goal achievement has a positively significant effect on firm value.

In the antecedent factors, corporate sustainability vision has a positive and significant effect on internal audit method integration, and technology-based internal audit implementation. Next, top management support has a positive and significant effect on dynamic internal audit planning, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. Also, best accounting system has a positive and significant effect on dynamic internal audit planning technology-based internal audit implementation, and internal audit skepticism competency. Moreover, technology acceptance has a positive and significant effect on internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. In addition, environmental turbulence has a significantly positive effect on technology-based internal audit implementation, and internal audit innovation orientation. As to the moderating effect of governance culture, it does not play amoderating role between the antecedent and each dimension of internal audit intelligence orientation, except for interaction between corporate sustainability vision and governance culture. It has a strong positive significance for enhancing internal audit intelligence orientation. Potential discussion with the research results is effectively implemented in this research. Theoretical and managerial contributions are described. A conclusion, suggestions, and directions for future research are also highlighted.

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CHAPTER I

INTRODUCTION

Overview

Organizations have encountered rapid changes in economic complexity, expanded regulatory requirements, and technological advancements in recent years. In addition to these changes, the current corporate scandals, the global financial crisis, and the lack of transparency in business operations are included. Therefore, corporate governance has received significant attention from regulators and the public (Soh and Martinov-Bennie, 2011). Information transparency is an important issue for all companies because it helps to build a stakeholder's confidence as to their investment decisions (Yu, 2005;Elliott, Krische, and Peecher, 2010). Within corporate governance, the main application of transparency concerns acting in accordance with published rules, based on information that is accessible to the public, under the presumption that this secures good governance (Hood and Heald, 2006;Okland et al., 2010). Good corporate governances entails transparency in performance and enhances the credibility of organizations (The Stock Exchange of Thailand, 2015). The corporate governance reforms in many countries now increases the importance of internal audit function, and improves the transparency and quality of financial reports. Furthermore, internal audit understands the concern for disclosure and transparency, aligning risk assessment with stakeholder expectations (Julien and Rieger, 2011). Hence, internal audit plays an important role in an organization's transparency (Berhe, Ali, and Mihret, 2014). Internal auditing has gained increasing importance as an important monitoring mechanism in corporate governance and helping ensure financial reporting reliability (Abuazza et al, 2015; Holt and DeZoort, 2009; Sarens and Abdolmohammadi, 2011).

The challenge of defining the role of internal audit is complicated by a dynamic business environment (Institute of Internal Auditors, 2015). Survival in such competitive and highly complex conditions requires alertness to the environment and a timely and appropriate response. Successful adaptation and response, in return, depend on organizational intelligence (Khanghahi and Jafar, 2013). Therefore, intelligence

added to internal audit is making strides toward excellence in demonstrating business acumen, technical expertise, and relationship skills to be invaluable resources in furthering the organization's governance, risk management, and strategic objectives (Institute of Internal Auditors, 2015).

Internal auditing is an independent, objective assurance and consulting activity designed to add value and improvement to an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes (Institute of Internal Auditors, 2014). Internal audit guides the company to achieve its goals, addressing in a systematic way and methodical process of evaluating and improving the effectiveness of risk management, control and governance. At present, there is a mandate for listed firms to set up internal audit functions in Thailand, whether in-house or outsourced. While organizational intelligence is the talent and potentiality of an organization to mobilize all of its brain power, an organization's information-processing capability seeks to understand and predict how organizations perceive, interpret, store, disseminate and utilize information, and focuses that brain power on achieving the mission (Akgun, Byrne, and Keskin, 2007; Albrecht, 2003). Moreover, intelligence includes a set of concepts, methods and processes to improve business decisions, using information from multiple sources and applying past experience to develop an exact understanding of business dynamics (Maria, 2005). It integrates the analysis of data with decision-analysis tools to provide the right information to the right persons throughout the organization, with the purpose of improving strategic and tactical decisions (Ghazanfari, Jafari, and Rouhani, 2011).

Internal audit intelligence orientation is the ability of an organization to plan, solve problems, think abstractly, innovate, learn and use technology in the way that evaluates and improves the effectiveness of risk management, control, and governance processes for the decision process (Institute of Internal Auditors, 2014; Pirttimaki and Hannula, 2003; Wells, 2008). It enables effective actions, achieving business goals and adding value to the firm (Pirttimaki and Hannula, 2003; Wells, 2008; Institute of Internal Auditors, 2014). Meanwhile, this research generates and develops the ideas in an internal audit intelligence orientation construct which has five dimensions; namely, dynamic internal audit planning, internal audit method integration, technology-based

internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. Furthermore, this research provides a new measurement, a conceptual model, and an empirical study that suggest antecedents and consequences of internal audit intelligence orientation.

This research attempts to extend the literature by using the resource-advantage theory and contingency theory. The resource-advantage theory explains the differences in resources, knowledge, and capabilities that create an advantage over its competitors and leads to goal achievement. Moreover, the resource-advantage theory is also utilized to explain internal audit intelligence orientation as a firm's resource and capability which is generated from the ability of an organization to reason, plan, solve problems, think abstractly, comprehend, innovate, learn, and use technology in order to enhance the competitive advantage of the firm. Therefore, firms combine these resources to create value for superior firm value. Thus, this research utilizes the resource-advantage theory to demonstrate the effect of internal audit intelligence orientation that has a positive impact on the consequences and firm value. The contingency theory is a class of behavioral theory which explains that there is no one best way to design systems, organize a corporation, or make decisions. Any way of organizing is not equally effective and an organizational style that may be effective in some situations may not be successful in others. The optimal action of organizing corporations is dependent on how well firms match between their internal features and characteristics, and the external environment. Thus, this research utilizes the contingency theory to explain the relationship between structural contingent antecedents and internal audit intelligence orientation.

In the context of Thailand, when the 1997 financial crisis broke out, it became apparent that weak corporate governance practices could have stronger problems. The Institute of Internal Auditors of Thailand was established in 1989 for exchanging experiences and academic information about the internal audit. Later in1999, The Securities and Exchange Commission (SEC) of Thailand designed reform efforts for corporate governance. Firms using regulatory discipline, market discipline, and self-discipline, good governance principles that protected investors' rights, improved board accountability, and increased transparency and disclosure. Moreover, the other Thai regulatory and organizations joined together to act in concert to improve

corporate governance practices in Thai-listed companies. Thailand has a mandate from its respective stock exchange/government that requires listed companies to have an internal audit function, whether in-house or outsourced (Asian Confederation of Institutes of Internal Audit, 2015).

According to literature reviews, more prior study in internal audit focuses on the characteristics of the internal auditor (Fadzil, Haron, and Jantan, 2005). However, this research studies at the organizational level that focus on the characteristics of the internal audit process. Much previous research includes the internal audit framework in the financial performance and the firm value analysis. Most of the results show a positive relationship between the internal audit and firm value. However, the relationship between the internal audit function and the financial performance has been negative (Wessels, et al., 2015). Meanwhile, some study does not find any relationship between the internal audit function (corporate governance score) and various measures of the firm value (Gupta, et al., 2009).Thus, this research aims to investigate relationship between internal audit and firm value in the context of Thailand. This research defines internal audit intelligence orientation as an optimal platform or framework in the internal audit processes, organizational intelligence and business intelligence that are suitable and outstanding for the firm to increase the capacity of the internal audit department. Furthermore, this research investigates the effects of internal audit intelligence orientation on operational risk protection, financial information reliability and organization expenditure reduction. As a result, the outcomes from internal audit intelligence that are used in practicality will be added for organizational value. Finally, that will enable organizations to achieve goals and firm value in the end.

This research makes important contributions to the internal audit literature. To begin with, it provides a new dimension of internal audit intelligence and a new way to study empirical data at an organizational level. Second, this research proposes antecedents and consequences at the organizational level; whereas, prior research does not. Finally, two main theories are used to describe the relationships among the variables in the single model.

Purposes of the Research

The main research objective is to examine the relationship between internal audit intelligence orientation and firm value. In addition, the specific research objectives are as follows:

1.To investigate the relationships among each dimension of internal audit intelligence orientation and operational risk protection, financial information reliability, organizational expenditure reduction, goal achievement, and firm value;

2. To examine the relationships among operational risk protection, financial information reliability, and organizational expenditure reduction as to goal achievement;

3. To investigate the relationship between goal achievement and firm value;

4. To examine the relationships among corporate sustainability vision, management support, best accounting system, technology acceptance, environmental turbulence, and each dimension of internal audit intelligence orientation, and;

5. To analyze the moderating effect of governance culture that has influences on the relationships among corporate sustainability vision, management support, best accounting system, technology acceptance, environmental turbulence, and each dimension of internal audit intelligence orientation.

Research Questions

The key research question is, "How does internal audit intelligence have an effect on firm value?" Moreover, the specific research questions are presented as follows:

1. How does each dimension of internal audit intelligence orientation have an effect on operational risk protection, financial information reliability, organizational expenditure reduction, goal achievement, and firm value?

2. How do operational risk protection, financial information reliability, and organizational expenditure reduction have an influence on goal achievement?

3. How does goal achievement have an effect on firm value?

4. How do corporate sustainability vision, management support, best accounting system, technology acceptance, and environmental turbulence have an influence on each dimension of internal audit intelligence orientation? and,

5. How does governance culture moderate the relationships among corporate sustainability vision, management support, best accounting system, technology acceptance, environmental turbulence, and each dimension of internal audit intelligence orientation?

Scope of the Research

This research concentrates on the relationship between internal audit intelligence orientation and firm value in the context of listed firms in Thailand. With respect to the research objective and research questions, there are several group variables. In the first group, internal audit intelligence orientation is an independent variable of the research that consists of five dimensions, namely, dynamic internal audit planning, internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. In the second group, consequence variables are composed of operational risk protection, financial information reliability, organizational expenditure reduction, goal achievement, and firm value. In the third group, antecedent variables include corporate sustainability vision, management support, best accounting system, technology acceptance, and environmental turbulence. In the final group, the moderating variable is governance culture.

With respect to the research objective and research questions, there are many variables in the research. Internal audit intelligence orientation is an independent variable consisting of five dimensions: 1) Dynamic internal audit planning refers to the ability of an organization to design activities based on risk analysis to determine the priorities of the internal audit activity and are consistent with the organizational goal, which design activities can change or modify and be flexible, as well as be adaptable to business environmental change. 2) Internal audit method integration refers to the competency of firms to combine the ability of the chief audit executive, audit method, audit risk procedure and cooperation of all units to identify and manage potential

uncertainty in each activity of the firms. 3) Technology-based internal audit implementation refers to the ability of an organization to implement tools and computers that can automate an aspect of internal audit work, which technology consists of computer-based, web-based, and internet to assist the examination of the data, and identify patterns and potential risks to ensure that the data is complete, accurate, timely and available. 4) Internal audit innovation orientation refers to new or developed internal audit strategies and techniques that the internal auditor used to conduct internal audit activities about risk assessment, internal control, and consulting for management for increasing the efficiency and effectiveness of internal audit activities, and focus on participative internal audit. 5) Internal audit skepticism competency refers to the characteristics that enable the internal audit department to perform internal audit tasks with a questioning mind, being alert to irregular conditions, ongoing validated evidence, and conclusions. This research develops a framework by using two theories consisting of the resource-advantage theory and contingency theory to explain the relationship between variables.

This research chooses Thai-listed firms in The Stock Exchange of Thailand (SET) as the population and sample. This is because Thailand has a mandate from its respective stock exchange/governments that requires listed companies to have an internal audit function, whether in-house or outsourced. The study sample included 594listed firms in Thailand obtained from the database of The Stock Exchange of Thailand (SET). The data were collected by mail survey. Internal audit executives are the key informants for rich information in internal audit intelligence. To increase the quality of the questionnaire, validity and reliability are tested by factor analysis and Cronbach's alpha. Multiple regression analysis is the main statistic to test there lationships' effects between constructs. Furthermore, descriptive analysis, variance inflation factors (VIFs), homoscedasticity, and correlation analyses test the basic assumption of regression analysis. Besides, a non-response bias is examined to prevent possible response bias problems between the early and late response groups.

Finality, the scope of the research consists of five major parts as detailed below. The first important part is the examination of internal audit intelligence orientation that influences consequences, operational risk protection, financial information reliability, organizational expenditure reduction, goal achievement,

and firm value. The second is to examine the influence of operational risk protection, financial information reliability, and organizational expenditure reduction on goal achievement. The third examines the influence goal achievement on firm value. The fourth is to examine the influence of corporate sustainability vision, top management support, best accounting system, technology acceptance, and environmental turbulence on each dimension of internal audit intelligence orientation. Finally, this research examines the influence of corporate sustainability vision, top management support, best accounting system, technology acceptance, and environmental turbulence of internal audit intelligence orientation via governance culture as a moderator.

Organization of the Dissertation

This research is structured in five chapters. Chapter one provides an overview of the research, purpose of the research, research questions, scope of the research and organization of the research. Chapter two reviews the relevant literature, explains the theoretical framework to describe the conceptual model, and develops the related hypotheses for testing. Chapter three is the interpretation of the empirical research methods that compose the sample selection and data collection approach, the measurements of each variable, the building of the survey instrument, the statistics and equations to examine the hypotheses, and the summarizing of the variable definitions and operational definitions in a table format. Chapter four describes the empirical results and discussion exhibit, and also compares and describes prior research and results of this empirical study. Finally, chapter five presents the conclusion, theoretical and managerial contribution, limitations, and direction of future research.

CHAPTER II

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Chapter one describes the overview of internal audit intelligence orientation, the research motivation, the purposes of the research, the key research questions, and the scope of the research. This chapter elaborates to better understand the concept of internal audit intelligence orientation which emphasizes the theoretical foundation, the conceptual model, the relevant literature review, and the research hypotheses development. The key construct of the conceptual model of this research is internal audit intelligence orientation. This research will provide empirical evidence so that internal audit intelligence orientation may enhance firm value with regards to the antecedents and the consequences of internal audit intelligence orientation. The resource-advantage theory and the agency theory are applied in this research to explain how internal audit intelligence orientation affects firm value through operational risk protection, financial information reliability, organizational expenditure reduction, and goal achievement. Furthermore, the contingency perspective is useful to give an explanation of the linkage among the antecedents of internal audit intelligence orientation and internal audit intelligence orientation. The literature review is conducted to provide an understanding of all constructs in the proposed conceptual model and to develop the research hypotheses for testing.

The organization of this chapter is structured into three sections. The first section describes the theoretical foundations which are used to explain the conceptual model. The second section provides the relevant literature review, the definition of all constructs in the conceptual framework, and the hypotheses development. The final section summarizes the hypotheses relationships and descriptions.

Theoretical Foundations

Prior research has used different theory for governance-related research, which includes internal auditing research, especially the agency theory to explain and propose alternative perspectives such as stakeholder theory, stewardship theory, institutional

theory, communication theory, contingency theory and resource dependency theory (Endaya and Hanefah, 2013; Mihret, 2014). For example, in the agency theory, management introduces internal auditing and other internal control mechanisms to signal to shareholders that management is properly discharging its responsibility to maximize shareholders' wealth (Jensen and Meckling, 1976). The theory assumes that organizational actions are driven by individuals' pursuit of self-interest, with contracts governing the relationships between management, shareholders, and employees (Endaya and Hanefah, 2013). The stewardship theory has been considered as another alternative to the agency theory, due to the fact that the theory is more comprehensive and more realistic in viewing management actions and motivations than in the agency theory (Albrecht, Albrecht and Albrecht, 2004). The stewardship has been considered as a construct that is suitable to shape important employee behaviors (Schepers et al., 2012). The stewardship theory also emphasizes that stewardship outcomes can be contingent upon specific organizational structures (Hernandez, 2012). The institutional theory explains how organizational structures and practices are shaped through changes induced by normative pressures, including both external and internal sources such as laws and regulations, or by the professions (Mihret et al., 2010).

However, this research suggests the combinations of theories which could help in developing a theoretical framework of internal audit intelligence orientation and extend the internal audit research that includes the resource-advantage theory and contingency theory. This is based on the resource-advantage theory which is considered as the internal audit intelligence orientation of the internal audit department as a intangible resource for any company performance. Internal audit intelligence orientation is a valuable resource and is a resource that is different from competitors to perform internal audit work better than competitors and help a firm to reach its goals and adding value to the firm. The contingency theory is usually applicable in the context of effectiveness achievement. Several researches have used the contingency theory in the attainment of effectiveness at organizational level (Kepes, Delery, and Gupta, 2009; Morton and Hu, 2008). Therefore, much previous research displayed the effect of contingency theory in relation to effectiveness achievement. This research focus on the achievement of effectiveness in the area of internal audit. Then, this research used the contingency theory in predicting that internal audit intelligence orientation is contingent

upon various suitable variables. The relationships among internal audit intelligence, its consequences, and firm value are explained by the resource-advantage theory.

Resource-Advantage Theory

Business strategy is swinging back to the firms of the 90's, and the key determinant of profitability is based on the view that superior performance and sustainable competitive position depend on the resources of the firm. The key challenge for managers is to turn basic resources into core competencies. The basic idea is that the resources of the firm are different, reduce cost, and lead to superior performance. Mainly, these contributions can be associated with frameworks grounded in three extant paradigms such as the competitive forces paradigm, the strategic conflict paradigm, and the efficiency paradigm, all of which have given rise to the resource-advantage theory (Hunt and Madhavaram, 2006).The resource-advantage theory (R-A theory) is in the strategic management literature. This approach was developed in 1995, and has been extended by the contributions of Hunt and Morgan (1997). It is a process theory of competitive firm behavior that emphasizes the importance of market segments and resources (Hunt, 1997). Thus, this research uses the R-A theory as the main theory to explain internal audit intelligence orientation.

The R-A theory emphasizes market-based economies and assumes an inter-industry and intra-industry demand. The purpose is that the resources of firms are heterogeneous, unique, and relatively immobile within the same industry. The R-A theory is an evolutionary, disequilibrium-provoking, process theory of competition in which innovation and organizational learning are endogenous, firms and consumers have imperfect information; and entrepreneurship, institutions, and public policy affect economic performance (Hunt and Madhavaram, 2006). Firms attempt to compare their resource advantage with competitors and identify market positions of competitive advantage in some segments so as to achieve financial performance. Resources are divided into tangible and intangible assets available to the firm that are able to efficiently and effectively produce a market offering that has value (Hunt, 1997). Tangible resources are assets that can be quantified such as manufacturing plants, production equipment, and technological resources. Intangible resources are assets that are unobservable such as knowledge, skill, experience, reputation, human capital, and

patents of know-how (Hunt and Madhavaram, 2006). Therefore, internal audit intelligence orientation is the organization's resource in this research.

The R-A theory stresses the value of: (1) market segments, (2) heterogeneous firm resources, (3) comparative advantages and disadvantages in resources, and (4) marketplace positions of competitive advantage or disadvantage (Hunt and Madhavaram, 2006). It merges together two theories which are the heterogeneous-demand theory and the resource-based theory of the firm. Moreover, Hunt and Morgan (1997) have divided the resource-advantage theory into three parts: (1) resources, (2) financial performance, and (3) market position. The R-A theory places stress on innovation, both proactive and reactive, that contributes to competitive advantage. It shows that internal audit creativity strategy is a resource that helps a firm to do better than other competitors and yields marketplace positions of competitive advantage. In addition, the learning process is a key factor of the theory. The R-A theory treats organizational learning as important, but complex resources can generate a competitive advantage for a firm in dynamic and unstable markets (Liu, Luo, and Shi, 2002).

Firms which have the ability to learn faster than their competitors will achieve high performance and survival in the market (Slater and Narver, 1995). Consequently, firms use the feedback from relative performance (e.g. financial performance, public policy, consumers, and competitors) to improve the firm’s strategy, attempt to acquire the imitated resources to make competitive advantage, and generate innovation for a superior advantage. It clearly explains how resources lead to financial performance. Firms will have a different nature of resources and varying levels of capabilities (Hunt and Morgan, 1997). These capabilities help convert selected strategies in the process of shaping positional advantages (Atuahene-Gima, Slater, and Olson, 2005). A capability refers to the ability to deploy and coordinate different resources, usually in combination, using organizational processes to affect a desired end (Grant, 1991). Moreover, firm survival depends on the firm’s ability to create new resources, build on its capable platform, and make the capabilities more inimitable to achieve competitive advantage and sustainability (Peteraf, 1993). To complete the sustainable competitive advantage, the R-A theory explains that a firm’s achievement is reached by virtue of unique resources which have the characteristics of being rare, valuable, non-substitutable, and inimitable as well as firm-specific (Hunt and Morgan, 1997). In addition, when firms

combine resources and capabilities, they can develop the firm's competencies and apply them to create specific organizational abilities (Teece, Pisano and Shuen, 1997); that is, a specific ability to manipulate a firm's resources in bundles creates a capability for accomplishing the purpose to attain strategic objectives. Internal audit resource can help a firm to gain strategic success for the business, to do better than other competitors, and to yield market place positions of long-term competitive advantage (Connor, 2011).

On the part of internal audit, this theory points out that financial performance is the signaling of the market segment with the resources (Hunt and Madhavaram, 2006). It has been the extensive use of the R-A theory framework that analyzes firm performance (Atuahene-Gima, Slater, and Olson, 2005). It is to increase economic benefits in order to raise the level of productivity and improve management quality. To raise the level of productivity requires enterprises to tap potential manpower, material and financial resources, making full use of current and available resources for production and operation (Guoming, 1997). To improve management quality requires enterprises to set up a management system, improve managerial organizations and methods, and make the right decision at the most appropriate time. The R-A theory suggests that heterogeneity in firm performance is due to the ownership of resources that have differential productivity (Makadok, 2001). Moreover, the independence of an internal audit department is an important means for an enterprise to strengthen operational management. Firms will have different natures and varying levels of capabilities (Hunt and Morgan, 1997). Internal audit intelligence orientation is an asset of an organization to evaluate and improve the effectiveness of risk management, control, and governance processes for achieving business goals and adding value to the firm.

In this research, the R-A theory is applied to explain that internal audit intelligence orientation is the intangible resource which creates an advantage for the internal audit process and internal audit outcome (operational risk protection, financial information reliability, organizational expenditure reduction, and goal achievement) which leads to firm value.

Contingency theory

The contingency theory recently has become the predominant theory that has received a larger concentration of researchers in the field of accounting and auditing (Abushaiba and Zainuddin, 2012; Badara, 2015). Despite the fact that the application of the theory can result in different effects, the effectiveness of a theory may equally be dependent upon the proposed area (Chenhall, 2003). Nevertheless, the contingency theory enables a researcher to systematically introduce factors to explain or predict expected phenomena (Umanath, 2003). The theory enables one to hypothesize a conditional relationship between two or more independent variables with a dependent variable, and then subject it to empirical validation (Drazin and Van de Ven, 1985). Equally, the theory has been employed by previous researchers in explaining some of the research variables, even with regard to audit effectiveness (Jokipii, 2010; Woods, 2009).The theory has been equally employed by previous researchers (Sudsomboon and Ussahawanitchakit, 2009), as contingent variables that can also differ (Woods, 2009). Therefore, this research posits that internal audit intelligence orientation is contingent upon the contingency variables of corporate sustainability vision, top management support, best accounting system, technology acceptance, environmental turbulence, governance culture and internal audit outcomes.

The word “contingency” means something is only true under specified conditions (Chenhall, 2003). Contingency has also referred to the situation that has effects of one variable on another variable depending on a third variable (Donaldson, 2001). The contingency theory is a behavioral theory which posits that there is no best way to manage. In line with this, prior research have pointed out that there is no perfect way to provide a good management accounting system, but rather it is dependent upon some contingencies to dictate the best option for management accounting systems in each particular condition (Haldma and Laats, 2002; Reid and Smith, 2000). In this regard, this research has provided that internal audit effectiveness can be best explained through the contingency theory. Contingency scholars confirm that performance is a function of the fit between the organization and its environmental contingencies (Volberda et al., 2012). An appropriate fit between the organization and its environment, and an appropriate organizational design will lead to a greater effectiveness, efficiency and participant satisfaction (Kast and Rosenzweig, 1985). This theory demonstrates the

ability of the organization to adjust or adapt to the environment that is necessary for consistency between the environment and the infrastructure (Sauser, Reilly, and Shenhar, 2009).

Research has been conducted using the contingency theory. For example, the relationship between characteristics of internal auditors and internal audit department performance on internal audit effectiveness is contingent upon the organizational members' support (Endaya and Hanefah, 2013). The relationships among top management transparency vision, corporate governance climate, employee collaboration, business competitive intensity and internal audit practice (Sampattikorn, Ussahawanitchakit, and Boonlua, 2012). The effect of the contingency theory on the empirical evidence of the performance measurement of internal audit function as to its effectiveness (Badara, 2015). The contingency theory is interested generally in the form of the relationship and also assumes that a consistent relationship is more effective than an inconsistent relationship. Meanwhile, the contingency theory differs from the other theories in the form of their specific propositions, because the theory hypothesizes a conditional relationship between two or more independent variables with a dependent variable; and then subjects it to an empirical validation (Drazin and Van de Ven, 1985).

In this research, the contingency theory is applied in a two-fold manner. Firstly, the contingency theory is utilized to explain the relationship between structural contingent antecedents and internal audit intelligence orientation. The assumption of the contingency theory is that internal audit intelligence orientation is established and enhanced by an exogenous factor (i.e., technology acceptance, environmental turbulence) and an endogenous factor such as vision, top management support, and accounting system. Moreover, an appropriate internal audit function is likely to vary from organization to organization (Arena and Azzone, 2009). The successful implementation of intelligence in an internal audit function depends on internal factors such as corporate sustainability vision, top management support, and best accounting system of the firms, and external factors such as technology acceptance and environmental turbulence. Second, the moderating effects of governance culture between internal audit intelligence orientation and internal audit outcomes are explained by the contingency theory.

Relevant Literature Review and Research Hypotheses Development

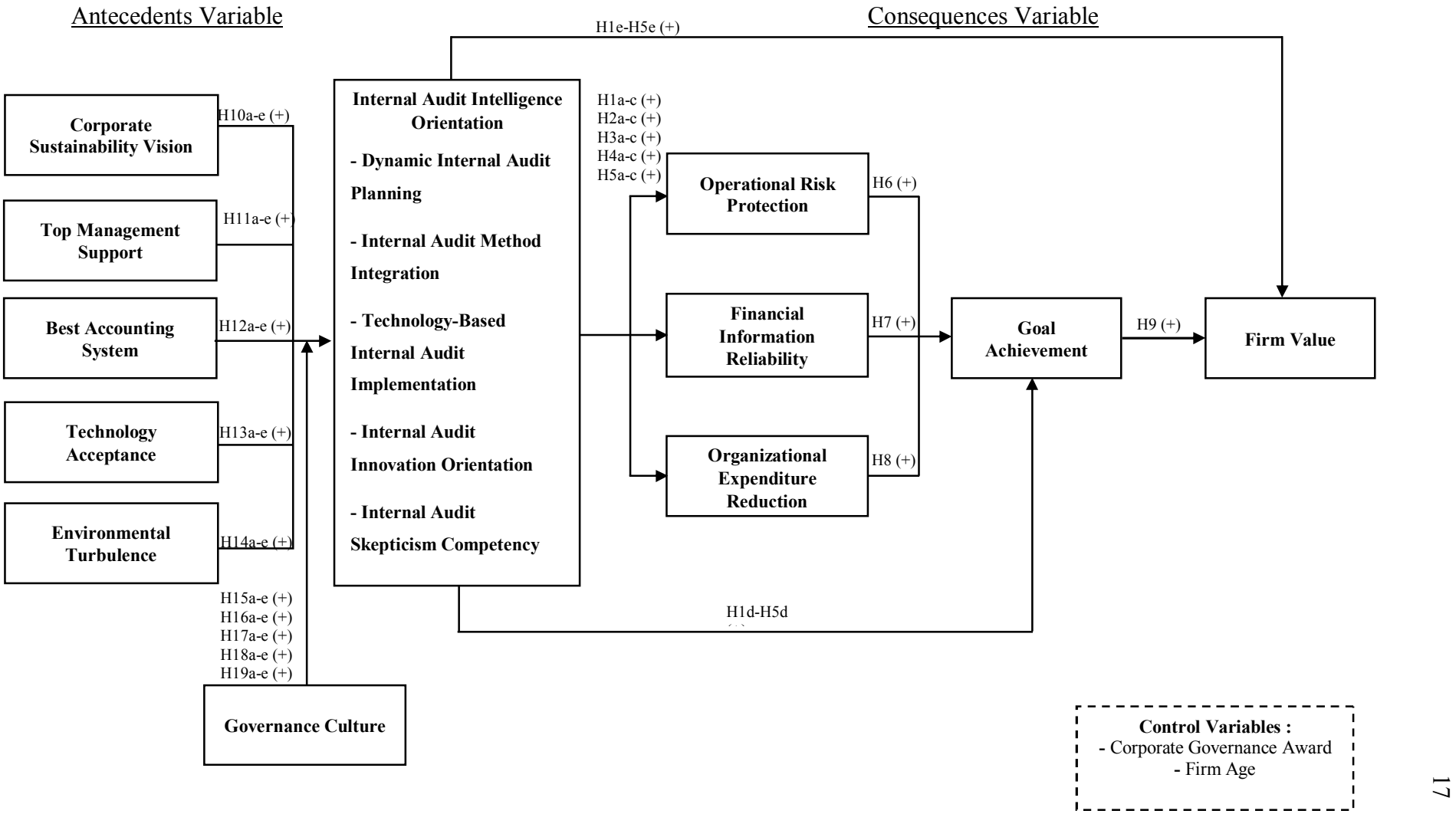
This section illustrates the literature review that is relevant to the conceptual framework, and the linkage of the relationships among antecedents and consequences on internal audit intelligence orientation. Although there are the resource-advantage theory and the contingency theory to explain this phenomenon, the explanation of relationships in each construct is sufficient. In order to comprehend all relationships, the literature reviews are divided into three sections.

Firstly, the relationship not only presents the internal audit intelligence orientation, but is the main concept that includes five dimensions, namely, dynamic internal audit planning, internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. It also demonstrates each relationship dimension that has a positive effect on the consequences. Likewise, the consequences are five constructs that are operational risk protection, financial information reliability, organizational expenditure reduction, goal achievement, and firm value.

Secondly, the antecedent of internal audit intelligence orientation consists of corporate sustainability vision, top management support, best accounting system, technology acceptance, and environmental turbulence, which are expected to investigate a positive relationship with five dimensions of internal audit intelligence orientation.

Finally, it elaborates how the moderating effect of governance culture has a positive influence on the relationship between the elements of the antecedents and dimensions of internal audit intelligence orientation. As a result, a conceptual model of this dissertation is shown in Figure 1.

Figure 1: Conceptual Model of the Relationship Between Internal Audit Intelligence Orientation and Firm Value



Internal Audit Intelligence Orientation

Internal audit intelligence orientation comes from two parts, including business/organizational intelligence and the internal audit process. In the first part, business intelligence refers to the capability of the organization or company to explain, plan, predict, solve problems, think in an abstract way, understand, invent, and learn in order to increase organizational knowledge, provide information to the decision process, enable effective actions, and support establishing and achieving business goals (Wells 2008).Traditionally, business intelligence (BI) has been used as an umbrella term to describe concepts and methods to improve business decision-making by using fact-based support systems (Nylund, 1999). Meanwhile, business intelligence is defined as an organized and systematic process by which organizations acquire, analyze and disseminate information significant for their business activities. However, the term can refer to processes, techniques, or tools to support the making of faster and better decisions (Pirttimaki and Hannula 2003). Moreover, organizational intelligence is the talent and potential of an organization to mobilize all of its brain power, and the organization's information-processing capability which seeks to understand and predict how organizations perceive, interpret, store, disseminate and utilize information; and then focus that brain power on achieving the mission (Akgan, Byrne, and Keskin, 2007; Albrecht, 2003). Intelligence includes a set of concepts, methods and processes to improve business decisions, using information from multiple sources and applying past experience to develop an exact understanding of business dynamics (Maria, 2005). It integrates the analysis of data with decision-analysis tools to provide the right information to the right persons throughout the organization, with the purpose of improving strategic and tactical decisions (Ghazanfari, Jafari, and Rouhani, 2011). Thus, in this study, intelligence refers to the ability of an organization to reason, plan, solve problems, think abstractly, comprehend, innovate, learn and use technology in a way that increases organizational knowledge, provides information to the decision process, enables effective actions, and supports establishing and achieving business goals. The definitions of business intelligence and organizational intelligence are various, as evidenced in Table 1.

Table 1: The Definition of Business Intelligence and Organizational Intelligence

Author(s)	Definition
Brackett (1999)	A series of concepts, methods and processes that enable, for example the monitoring of economic trends and effective utilization of information in strategic and tactical decision making.
Albrecht(2003)	The talent and potentiality of an organization in the movement and power of its imagination and the concentration of this method power in the materialization of the goals of the organization.
Pirttimäki and Hannula (2003)	An organized and systematic process by which organizations acquire, analyze and disseminate information significant for their business activities. However, the term can refer to processes, techniques or tools to support the making of faster and better decisions.
Moss and Atre (2003)	The information technology based systems used in analysing raw data and information and in storing and sharing valuable information and knowledge are considered an important part of Business Intelligence
Raisinghani (2004)	Strategic planning and management efforts that apply techniques and tools for transformation of raw data into information that is sufficient for use in business analysis and decision-making processes
Azvine et al. (2006)	All about capturing, accessing, understanding, analyzing and converting one of the fundamental and most precious assets of the company, represented by the raw data, into active information in order to improve business

Table 1: The definition of business intelligence and organizational intelligence

Author(s)	Definition
Akgan Byrne, and Keskin (2007)	The talent and potentiality of an organization to mobilize all of its brain power, organization's information-processing capability, which seeks to understand and predict how organizations perceive, interpret, store, disseminate and utilize information, and focus that brain power on achieving the mission.
Pirttimaki (2007)	An intelligence process that includes a series of systematic activities, being driven by the specific information needs of decision makers and the objective of achieving competitive advantage.
Wells (2008)	The capability of the organization or company to explain, plan, predict, solve problems, think in an abstract way, understand, invent, and learn in order to increase organizational knowledge, provide information to the decision process, enable effective actions, and support establishing and achieving business goals
Jung (2009)	The procedural ability of an organization to efficiently process,exchange, measure and reason about management. Organizational intelligence is the combined knowledge and skills regarding both tangible and intangible assets that the organization can deploy to achieve its goals.

Moreover, the second part is the meaning of the internal audit process. The Institute of Internal Auditors (IIA) defines internal auditing as an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes (Institute of Internal Auditors, 2014).

Among other roles, internal audit provides assurance regarding the efficiency and effectiveness of governance, risk management, and internal control (Anderson and Eubanks, 2015). The scope of internal audit work can encompass all aspects of an organization's operations and activities. Theoretically, the internal audit exists to help the department of an organization to improve the performance of its activities (Ali et. al., 2012). It also becomes more important because an effective internal audit is considered part of the solution to the perceived breakdown in the systems of business reporting, internal control and ethical behavior (Arel, Kaplan, and Donnell., 2006). Some of the major roles and responsibilities of internal audit function evaluate and provide reasonable assurance that risk management, control, and governance systems are functioning as intended and will enable the organization's objectives and goals to be met. It reports risk management issues and internal controls deficiencies that are identified directly to the audit committee, and provides recommendations for improving the organization's operations, in terms of both efficient and effective performance. It evaluates information security and associated risk exposures, evaluates regulatory compliance program with consultation from legal counsel, maintains open communication with management and the audit committee, engages in continuous education and staff development, and provides support to the company's anti-fraud programs. According, the internal audit needs to improve five priorities that are: the risk assessment process, the ability to monitor emerging risks, the interest toward achieving the business objective, the reduction of costs of the internal audit function without compromising risk coverage, and the design of opportunities for cost savings in the business (Ernst and Young, 2012). Additionally, management of the organization is responsible for establishing and maintaining an effective internal control system, such as the structure and activity management system that enables organizations to effectively reduce risk for the achievement of the organization's objectives (Matarneh, 2011). Internal audit is a supporting department of the management organization. Besides, internal audit is an important part of the corporate governance structure within an organization. Thus, a firm must have a complete understanding of an organization's operations, processes, and procedures which must be designed, implemented, and tested to determine whether processes and procedures are working as intended (Lin, Wang, and Yu, 2010). Nowadays, internal audit is taking on increased importance in today's

businesses by assisting management in evaluating controls and operations. The challenge is to identify and meet management expectations; thus, internal audit is a vehicle to survival and success. In summary, this research shows that internal audit intelligence orientation is defined as the ability of an organization to plan, solve problems, think abstractly, innovate, learn and use technology in a way that evaluates and improves the effectiveness of risk management, control, and governance processes for the decision process, to enable effective actions, achieve business goals and add value to the firm.

Today, business intelligence has been converted to one of the basic management concepts and is involved in leading organizations (Tavallaei et al., 2015). Successful implementation of business intelligence requires more than just a technology platform. It is a challenge for organizations to effectively use business intelligence. Prior research found that the business intelligence maturity model indicators consist of people, process and technology (Burton, 2007; Cates et al., 2005; Hagerty, 2006 and Sacu and Apruit, 2010). Hence, this research incorporates prior research for new dimensions of internal audit intelligence, which classifies them into three groups including people, process, and technology. In the first group, “people” refers to internal audit skepticism. In the second group, “process” is dynamic internal audit planning and internal audit method integration. In the last group, “technology” is technology-based internal audit implementation and internal audit innovation orientation. Therefore, in this research, internal audit intelligence orientation is a main variable of the research consisting of five dimensions; namely, dynamic internal audit planning, internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. Thus, a summary of the key literature review on the internal audit intelligence orientation is presented in Table 2.

Table 2: Summary of Key Literature Reviews on Internal Audit Intelligence Orientation

Authors	Key Issue Examined	Main Finding
Carpenter, Durtschi, and Gaynor (2002)	This study is to examine the role of experience in increasing professional skepticism, knowledge acquisition, and ability to detect fraud.	The special training (i.e., fraud-risk factors or red flag indicator) and feedback on fraud detection heighten the level of professional skepticism of less experienced auditors.
Bradts (2007)	Integrated compliance: the challenge of convergence.	The benefits of integration are cost reduction, reduction of workloads, more integrated compliance views and fewer risks. A less obvious benefit is the growth in process maturity.
Chang et al. (2008)	This study to design an audit detection risk assessment system that could more precisely assess detection risk, comparing with the traditional determination method of detection risk in order to increase the audit quality and reduce the possibility of audit failure.	Risk assessment would affect audit designation that can save audit cost both in planning times and resources. Moreover, the risk of audit failure should be reduced.

Table 2: Summary of Key Literature Reviews on Internal Audit Intelligence Orientation (continued)

Authors	Key Issue Examined	Main Finding
Nelson (2009)	This study reviews research that examines professional skepticism in auditing.	The paper provides a model that explains how auditors gather and evaluate evidence with knowledge, traits, and incentives to produce judgments that reflect professional skepticism. The article also provides a guideline for how audit firms enhance professional skepticism via hiring, training, performance appraisal, review, decision aids, incentives, and changes in tasks and institutions.
Mihret, James, and Mula (2010)	This study is to synthesize relevant theoretical and empirical literature to develop propositions and suggest a research agenda on the antecedents and organisational performance implications of internal audit effectiveness.	Propositions and a research agenda are provided on potential antecedents of internal audit effectiveness and its possible association with company performance measured as rate of return on capital employed. Also, key variables are identified and operationalization issues discussed.

Table 2: Summary of Key Literature Reviews on Internal Audit Intelligence Orientation (continued)

Authors	Key Issue Examined	Main Finding
Norman, Rose, and Rose (2010)	This research is to examine the effects of internal audit reporting lines on fraud risk assessments made by internal auditors when the level of fraud risk varies.	This finding runs counter to the anticipated benefits of requirements that the internal audit function report directly to the audit committee, and it reveals potential conflicts of interest and independence threats created by the audit committee itself. We also investigate the effects of fraud risk decomposition on risk assessments made by internal auditors. We find that fraud risk assessment decomposition does not have the same effects on internal auditors as it has on external auditors, and the effects of decomposition do not align with the expected benefits of decomposition.
Moorthy et al. (2011)	This research evaluates the role of information technology and how it affects internal audit process in the organization.	Effective use of audit technology tools is critical to the success of audit activity, but is only one step toward understanding the changes technology is bringing about in business and the auditing profession. Emerging technologies will continuously change the shape of and approach to business controls, and audit approaches and techniques must change accordingly

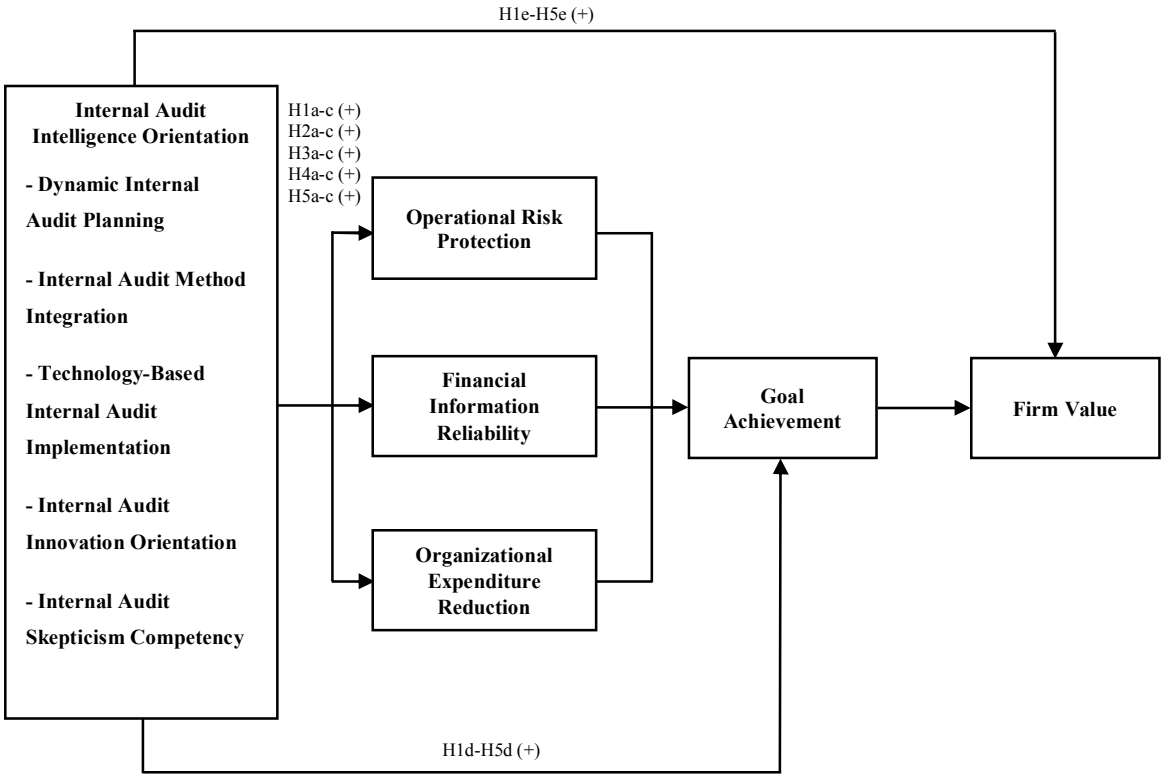
Table 2: Summary of Key Literature Reviews on Internal Audit Intelligence Orientation (continued)

Authors	Key Issue Examined	Main Finding
Dibrell, Craig, and Neubaum (2014)	This study explores the link between financial performance and the formal strategic planning process, planning flexibility, and innovativeness.	Firms' formal strategic planning processes and planning flexibility are positively associated, and each is positively related to innovativeness. In addition, innovativeness fully mediates the relationships between firm performance and the formal strategic planning process and planning flexibility.

The Effect of Internal Audit Intelligence Orientation on Its Consequences

This section examines internal audit intelligence orientation which includes dynamic internal audit planning, internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency on its consequences. This research attempts to explore the impact of five dimensions of internal audit intelligence orientation on its consequences as operational risk protection, financial information reliability, organization expenditure reduction, goal achievement, and firm value as shown in Figure 2.

Figure 2: The Effect of Internal Audit Intelligence Orientation on Its Consequences



Dynamic Internal Audit Planning

Dynamic Internal Audit Planning is the first dimension of internal audit intelligence. Adequate planning is required for every audit. A strategic plan helps guide the development of the internal audit function. The plan is more than a point-in-time risk assessment. It formally defines the value proposition of the new function, the customers it serves, and the value it will create now and into the future. It outlines operational tactics to achieve key objectives as well as functional management responsibilities (PricewaterhouseCoopers, 2003). The planning of the internal audit section should reflect the organization's business planning, and align the audit effort with the key business objectives and the critical business risks (Rameesh, 2003). Internal audit's focus should be on critical business processes and areas of high risk, be relevant, and give due weight to the needs and expectations. Good planning creates successful internal audit transformations. Concepts of the formal strategic planning process is focused more on the uses of both ends and means (Dibrell, Craig and Neubaum, 2014; Titus et al., 2011). Whereas "ends" pertains to what an organization desires to achieve (i.e., objectives), "means" reflects the process of how a firm intends to achieve these objectives (Brews and Hunt, 1999). Planning by the chief audit executive must establish a risk-based plan to determine the priorities of the internal audit activity, consistent with the organization's goals. To develop the risk-based plan, the chief audit executive consults with senior management and the board and obtains an understanding of the organization's strategies, key business objectives, associated risks, and risk management processes (IIA Standard, 2010). The chief audit executive must review and adjust the plan as necessary in response to changes in the organization's business, risks, operations, programs, systems, and controls (IIA, 2016).

Although a formal strategic planning process is considered to be positively related to firm performance (Schwenk and Shrader, 1993), evidence suggests that the effectiveness of strategic planning declines when environmental uncertainty increases as the perceived value of strategic planning decreases in kind (Dibrell, Craig and Neubaum, 2014). By its very nature, a formal strategic planning process creates a degree of inflexibility and rigidness, making efforts to adapt to changes in the external environment difficult, especially when managers become strictly tied to their strategic plans (Mintzberg, 1994). Increasingly, business leaders are voicing the need for their

firms to alter their strategic plans to match changing external environments (Grant, 2003; Wiltbank et al., 2006). Thus, planning flexibility, as well as the ability to effectively conduct formal strategic planning, can be a powerful, though somewhat paradoxical, means to create competitive advantages. An organization that can manage these downside risks successfully will be more resilient. They are just as resilient as organizations that respond more functionally as to threats to the individual, project, or organizational level created by internal dysfunctions or shifts in the environment (Bhamra, Burnard, and Dani, 2015). Consequently, resilient organizations can function effectively in more dynamic environments than their less resilient, but otherwise identical, counterparts. The dynamic capabilities approach was developed to explain how organizations might compete in rapidly changing environments (Teece, Pisano, and Shuen, 1997). Dynamic capabilities are the capacity of an organization to purposefully create, extend, or modify its resource base (Helfat et al., 2007). Dynamic capabilities differ from operational capabilities, which enable the organization to make a living in the present (Winter, 2003).Dynamic capabilities, on the other hand, are directed towards strategic change and aligning the organization with the environment (Zahra et al., 2006).

In uncertain times, businesses need dynamic planning to chart a course to high performance. Amid the current global economic storm, agility has emerged more strongly than ever as an essential factor for survival and success. The global financial crisis and increasingly volatile economic environment have prompted business leaders to re-examine their business plans and execute frequent mid-course corrections. Many businesses would benefit from event-driven dynamic planning. While external events cannot be controlled, how quickly an organization becomes aware of change, and responds to it, are key capabilities for managing performance across an organization (Batchelor and McCarthy, 2009).Thus, dynamic internal audit planning refers to the ability of organizations to design activities based on risk analysis to determine the priorities of the internal audit activity, consistent with the organizational goal, which design activities can change or modify, beflexible, and adaptable to business environmental change.

Prior study indicates that dynamic planning supports speed for decision-making, creates visibility to what is ahead, and focuses on the most important drivers of business performance (Batchelor and McCarthy, 2009). Dynamic capabilities

improve the effectiveness, speed, and efficiency of organizational responses to environmental turbulence (Chmielewski and Paladino, 2007; Hitt et al., 2001), which ultimately strengthens performance. They allow "the firm to take advantage of revenue-enhancing opportunities and adjust its operations to reduce costs" (Drnevich and Kriauciunas, 2011). Finally, dynamic capabilities, through sensing opportunities and reconfiguration, provide the organization with a new set of decision options, which have the potential to increase firm performance (Eisenhardt and Martin, 2000; Teece, 2007).The relationship between formal strategic planning and financial performance has been both positive (Delmar and Shane, 2003) and negative (Honig and Karlsson, 2004), with most studies demonstrating a positive relationship (Miller and Cardinal, 1994). The quality of the audit plan that can help one to understand the significance of the integrating process (Cohen, Krishnamoorthy and Wright, 2008) is more likely to improve the management of risk, improve the operation of businesses, and add value (Curtis and Payne, 2008; Diaz and Loraas, 2001; Elliott, Dawson, and Edwards, 2007; Vuchnich, 2008; Weidenmier and Ramanooriti, 2006).

In summary, dynamic internal audit planning has the potential possibility to affect operational risk protection, financial information reliability, organization expenditure reduction, goal achievement, and firm value. Hence, the hypotheses are proposed as follow:

Hypothesis 1a: Dynamic internal audit planning has a positive influence on operational risk protection.

Hypothesis 1b: Dynamic internal audit planning has a positive influence on financial information reliability.

Hypothesis 1c: Dynamic internal audit planning has a positive influence on organization expenditure reduction.

Hypothesis 1d: Dynamic internal audit planning has a positive influence on goal achievement.

Hypothesis 1e: Dynamic internal audit planning has a positive influence on firm value.

Internal Audit Method Integration

Internal audit method integration is the second dimension of internal audit intelligence orientation. Internal audit method, in this research, comes from the meaning of internal audit according to the IIA which is defined as an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluating and improving the effectiveness of risk management, control, and governance processes (IIA, 2016). The definition states three fundamental aspects of internal auditing that consist of its purpose in helping an organization achieve its objective: its nature of independence; objectivity; and its scope in covering the effectiveness and efficiency of risk management, control, and governance processes. Thus, internal audit method is the internal audit activity consisting of consultation for management, the evaluation and improvement process of risk management, control assurance and compliance work for added value, and improvement of an organization's operations directed toward corporate governance. Internal audit has a significant role in supporting an organization to achieve its objectives through the risk-based audit approach. Starting from the organization's strategies and objectives, internal auditors first identify and evaluate risks that may occur and prevent the organization from reaching its objective. Then, they verify how well the management is responding to those risks, and finally provide objective and independent opinions on things that should be done or could be done better.

Internal audit leaders looking for a way to improve staff skills and increase audit efficiencies would do well to consider integrated auditing, an approach that can help them on both counts. The integration process can be defined as a process of putting together different function-specific management systems into a single and more effectively integrated management system (Beckmerhagen et al., 2003). Similarly, integrated management system is a set of interconnected processes that share a pool of human, informational, material, infrastructure, and financial resources in order to achieve a composite of goals related to the satisfaction of a variety of stakeholders

(Karapetrovic and Willborn, 1998). Moreover, an integrated audit is the systematic examination of the relationship processes, procedures and activities within a company's environment (Maria, 2012). It stands to reason that integrated audits bring about a series of benefits to the organizations using them, for example, in the optimized use of resources (Bernardo et al., 2010; Pojasek, 2006; Zeng et al., 2007), and the establishment of auditor competence for different management system standards (Douglas and Glen, 2000). Integrated audits save time and money, while at the same time, minimize audit risk. Integrated audits should become the rule rather than exception, and audit departments that fail to embrace this phenomenon may become less valuable to their organizations. Regarding the integration of internal audits can be much more efficient than separate audits, as the process under review, along with all its controls (environmental, health, safety, and quality), has to be evaluated only once (Kraus and Grosskopf, 2008). Moreover, there is less duplication of effort during the planning, execution, and even follow-up phases of the audit. Therefore, in this research, internal audit method integration is defined as the competency of firms to combine the ability of the chief audit executive, audit method, audit risk procedure and cooperation of all units to identify and manage potential uncertainty in each activity of the firms.

Prior study indicates that risk assessment, as a basis to determine the way to manage important risk respectively, in both inherent and residual risk, affects confidence in internal audit efficiency (Savcuk, 2007). Risk assessment would affect an audit designation that can save audit costs both in planning times and resources. Moreover, the risk of audit failure should be reduced (Chang et al., 2008). Additionally, the process of identifying and managing risk has become increasingly more independent, dynamic and responsible (Soh and Martinov-Binnie, 2011). Audit success depends on the ability of critical thinking, analyzing, decision-making and applying the logic of internal auditors (Hass et al., 2006). Moreover, the risk assessment process and audit risk methodology are the key factors that influence audit success and audit judgments as well (Schultz et al., 2010). Risk management can reduce earnings volatility, maximize value, promote financial security in the organization (Lam, 2003), and help internal audit to improve the systems for managing the operational risk (Laviada, 2007). Moreover, the internal audit has affected efficient risk management; and consequently, business success and work quality (Karagiorgos, Drogalas and

Dimou, 2010). Importantly, a strong system of internal audit is good for an organization in risk management through early detection and prevention of errors and fraud which help to achieve performance and profitability, and prevents loss of revenues (Vijayakumar and Nagaraja, 2012).Furthermore, the participation of all units can increase the capacity to indicate and manage integrative risk, whether it is organizational risk or business risk as a whole, and which is fundamental to achieving the internal audit objective (PricewaterhouseCoopers, 2002). In addition, auditing integration reduced the scope of the auditing process and the extent of substantive audit procedures, such as in an audit integrated between IT systems and operational systems (Chaney and Kim, 2007), and the one integrated between information systems and financial systems (Vendrzyk and Brgranoff, 2003). Auditing integration helps toward a holistic system view, which leads to increase the confidence of assurance in accurate results of the auditing process. Moreover, integration auditing techniques are used to evaluate the overall risk of material misstatements for which the auditor should increase training for effective integrated auditing (Schultz et al., 2010).

In summary, internal audit method integration has the potential possibility to affect operational risk protection, financial information reliability, organization expenditure reduction, goal achievement, and firm value. Hence, the hypotheses are proposed as follows:

Hypothesis 2a: Internal audit method integration has a positive influence on operational risk protection.

Hypothesis 2b: Internal audit method integration has a positive influence on financial information reliability.

Hypothesis 2c: Internal audit method integration has a positive influence on organization expenditure reduction.

Hypothesis 2d: Internal audit method integration has a positive influence on goal achievement.

Hypothesis 2e: Internal audit method integration has a positive influence on firm value.

Technology-Based Internal Audit Implementation

Audit technologies is defined as any tool or technique, manual or computerized, that can automate an aspect of the audit (Curtis and Payne, 2008). Audit technology is an information technology application in auditing that signifies the use of any computer-assisted audit tool to improve an auditor's capacity in performing an audit (Elliott and Jacobson, 1987). It ranges from a simple audit automation using a spreadsheet application, to an advanced practice of audit software with databases and business intelligence applications (Rosli et al., 2016). By embracing audit technology in auditing, it allows organizations to perform audit tasks effectively and efficiently (Braun and Davis, 2003). Computer technology gives new techniques for investigating a business environment. Internal auditing around the world tries to create the profiles of technology that enable internal audit functions for international companies (Bota-Avram et al., 2010). Due to a technology-based approach, one can help the organization in a less costly and more efficient way to manage by reducing the fees paid to the external audit provider, and analyze more data much faster (Glover, 2013; Van Gansberghe, 2005). Computer-assisted audit tools and techniques can be used by an auditor (external or internal) as part of their audit procedures to process data of audit significance contained in an entity's information systems (Singleton and Flesher, 2003). Types of computer-assisted audit tools and techniques embraced by auditors include the following groups: electronic working papers, fraud detection, general audit software (for supporting tasks such as information retrieval and analysis), network security testing, continuous monitoring, audit reporting, databases of audit history, computer-based training, electronic commerce and internet security (Mahzan and Lymer, 2014). Computer assisted audit tools and techniques refer to various tools, technologies, and software that help auditors to conduct control and confirm tests, analyses, verification of financial statement data, and continuous monitoring and auditing (Lin and Wang, 2011).

Moreover, the technology-based audit provides the value of data analysis techniques, internal audits that can examine the data, and identify patterns and potential risks. In this way, an auditor can provide good recommendations to management for

determining a great performance in the internal audit activity (Bota-Avram et al., 2010). When organizations use audit software, it pulls and analyzes data from payment systems each evening after new data is entered, and before payments have been released. An internal audit team can follow up in the morning and review the report that shows potential problems and rank the level of risk (Glover, 2013).Thus, internal audit begins to consider building computer systems for auditing data to ensure the completeness and accuracy of data. Therefore, in this research, technology-based internal audit orientation refers to the ability of an organization to implement tools and computerized systems that can automate an aspect of internal audit work, which technology consists of computer, website, and the internet to assist the examination of the data, and identify patterns and potential risks to ensure that the data is complete, accurate, timely and available.

Much previous literature has studied the implementation of technology in the audit profession, focusing on an internal auditing job where the technology was used by internal auditors in private companies and public organizations (Moorthy et al., 2011; Mahzan et al., 2009; Rosli et al., 2016). Despite the wide usage of audit technology in internal auditing (Mahzan and Lymer, 2008) and the importance of audit technology (Ismail, 2009), such utilization is not extensive among public accounting firms, specifically in performing the external audit of their business clients (Curtis and Payne, 2008). Technology provides a great added value for internal auditing activity, and develops more accurate and complete data analysis (Bota-Avram et al., 2010). Moreover, computer-aided audit tools can help fraud detection, and increase the transparency of financial reports (Olasanmi, 2013). Computer-assisted audits increase audit efficiency and effectiveness (Braun and Davis, 2003). Computer-assisted audit tools and techniques are audit technologies that can help both internal and external auditors to perform audit tests and tasks in audit jobs (Saygili, 2010). Computer-assisted audit tools and techniques range from simple procedures such as electronic working papers to the use of statistical analysis software and artificial intelligence tools to predict financial failure or fraudulent financial statements (Jaksic, 2009). The claimed benefits for auditors and audit firms to use computer-assisted audit tools and techniques include reducing audit cost, improving audit quality and productivity, supporting timely audit reports and enhancing audit effectiveness and efficiency (Dowling and Leech, 2007; Zhao et al., 2004).

In summary, technology-based internal audit implementation has the potential possibility to affect operational risk protection, financial information reliability, organization expenditure reduction, goal achievement, and firm value. Hence, the hypotheses are proposed as follow:

Hypothesis 3a: Technology-based internal audit implementation has a positive influence on operational risk protection.

Hypothesis 3b: Technology-based internal audit implementation has a positive influence on financial information reliability.

Hypothesis 3c: Technology-based internal audit implementation has a positive influence on organization expenditure reduction.

Hypothesis 3d: Technology-based internal audit implementation has a positive influence on goal achievement.

Hypothesis 3e: Technology-based internal audit implementation has a positive influence on firm value.

Internal Audit Innovation Orientation

Internal audit innovation orientation is the second dimension of internal audit intelligence orientation. In previous research, Sumritsakun and Ussahawanitchakit (2009) defined internal audit innovation as new or developed internal audit strategies and techniques that the internal auditor used to conduct internal audit activities for increasing the efficiency and effectiveness of their activities. The innovation system can be defined as an interactive process that involves the generation, adoption, implementation, and incorporation of new ideas and practices within the firm (Carlsson et al., 2002; Van de Ven et al., 2002; Yam et al., 2011). Moreover, innovation is defined as the generation and/or acceptance of ideas, processes, products, or services that are the relevant adopting unit which perceives it as new (Garcia and Calantones, 2002). The innovations consist of two types: incremental and breakthrough. Incremental

innovations are the changes and improvement of old things. In contrast, breakthrough innovations are things that are novel and unique. Innovation is the basis for organizational survival (Hurley and Hult, 1998). The innovation process widely involves the knowledge management process, including acquisition, dissemination, and use of new knowledge (Verona, 1999). Innovation has been defined as the generation, acceptance, and implementation of new ideas, processes, products, or services. Firm innovation capability is a meta-capability, which is defined as the capabilities of the learning-to-learn type (Yang, 2012). It could be incrementally or radically new, but must to some extent be new, developed, successful and value-creating (Mortensen and Bloc, 2005). In addition, an audit innovation capability model, by using the functional approach, consists of seven components: learning capability, R&D capability, resource allocation capability, manufacturing capability, marketing capability, organizing capability and strategic planning capability (Yam et al., 2004).

Meanwhile, the nature of internal audit activity includes risk assessment, internal control, and consulting management; all of which directly affect corporate governance (Gramling et al., 2004). Innovation is the way for new ideas to improve the standard of living for the public when the public needs accountability, transparency, performance auditing, strategic planning, improved financial reporting and accurate information for decision-making (Adelabu and Tanko, 2013). Moreover, innovation can make the concept of an operation successful, when the organization takes risks in the process that lead to business success in the future (EL-Annan, 2013).Thus, internal audit has gone through a paradigm shift from an accountability of outcomes to helping the audit committee operate more effectively and efficiently (Nagy and Cenker, 2002). Auditing innovation implies systematically reviewing innovation in an organization (Chiesa et al., 1996), is considered to be one way to gain better understanding about a firm's state of innovation, and constitutes a trigger for improving a firm's capabilities to innovate (Björkdahl and Börjesson, 2012). Internal audit innovation capability helps corporate risk evaluation by internal auditors who have greater productivity in spending the internal audit dollar and providing a greater payback of the audit process (Dittenhofer, 2001). For innovation, competitive pressures increase and need to continuously adapt, leading to developing and improving innovation for organizational excellence (Yamet al., 2004). Therefore, in this research, internal audit innovation

orientation is defined as new or developed internal audit strategies and techniques that the internal auditor uses to conduct internal audit activities about risk assessment, internal control; and consulting for management to increase the efficiency and effectiveness of internal audit activities, and focus on a participative internal audit.

Prior researchers found that innovation has a positive relationship with freedom of information flow, rewards, training, creativity (Eisenberger and Shanoek, 2003), and organizational effectiveness (Soh and Martinow-Bennie, 2011). In addition, organizational knowledge can help individuals find the way to solve problems and lead teams to creativity and innovation for organizational performance (Sousa, Monteiro, and Pellissier, 2011). The operation of innovation challenge for business competitiveness (Damanpour and Wischnevsky, 2006) must be focused on the relationships with organizational performance.

In summary, internal audit innovation orientation has the potential possibility to affect operational risk protection, financial information reliability, organization expenditure reduction, goal achievement, and firm value. Hence, the hypotheses are proposed as follow:

Hypothesis 4a: Internal audit innovation orientation has a positive influence on operational risk protection.

Hypothesis 4b: Internal audit innovation orientation has a positive influence on financial information reliability.

Hypothesis 4c: Internal audit innovation orientation has a positive influence on organization expenditure reduction.

Hypothesis 4d: Internal audit innovation orientation has a positive influence on goal achievement.

Hypothesis 4e: Internal audit innovation orientation has a positive influence on firm value.

Internal Audit Skepticism

Internal audit skepticism is the second dimension of internal audit intelligence orientation. High profile scandals, fraudulent financial reporting, and failure to detect fraudulent activities became the prime concern of the corporate world (Castro, 2013). The Public Company Accounting Oversight Board (PCAOB) has amended SAS No.82 to SAS No. 99 in consideration of fraud in a financial statement audit, and to emphasize professional skepticism in detecting fraud. Professional skepticism is an important concept that is mentioned frequently in both audit standards and internal audit practice (Hurtt, 2010). From the viewpoint of individual auditing professions, skepticism can be considered from two positions: a neutral view and a presumptive doubt view (Nelson, 2009). From the neutral view, auditors should perform audit tasks with effort and without bias. Hence, under the neutral view, an auditor must perform with an unbiased judgment and be alert to fraud or error indicators. In contrast, the presumptive doubt view requires auditors to work hard on evidence-gathering and pay effortful attention to evidence which may indicate any misstatements. This view requires auditors to accumulate substantial evidence to reduce risk at an acceptable level. However, most audit standards and internal audit practices utilize the neutral view as a fundamental concept. Therefore this research implements the neutral view of professional skepticism.

The definition of professional skepticism has been discussed from the earliest auditing standards until nowadays. For example, professional skepticism is considered especially important in auditing and auditing standards that incorporate requirements for evaluating audit evidence with an attitude of skepticism (SAS 99; PCAOB Auditing Standard 12; AU 316.13). Professional skepticism requires an ongoing questioning of whether the information and evidence obtained suggests that a material misstatement due to fraud has occurred (SAS No. 99; PCAOB Auditing Standard 12). Professional skepticism in terms of various characteristics of skeptics (e.g., a questioning mind, suspension of judgment, self-confidence) that focus more on having and pursuing doubt rather than on a particular direction of doubt (Hurtt, 2010). Professional skepticism can be thought of as having a reasoning mind to question what has been presented for evaluative purposes, and to look beyond the obvious in the search for revealing information and relationships (McCoy, 2011). Indeed, as Joseph Wells, founder and

chairman of the Association of Certified Fraud Examiners believes professional skepticism is a sixth sense an auditor develops that provides them with the ability to identify classic warning signs or red flags of fraud or defalcation. Therefore, individuals who have considerable experience are likely to have fine-tuned their professional senses, are more instinctive, and, accordingly, have a heightened level of professional skepticism.

However, the issue is in skepticism research, which should be implemented by firms or individuals. Most prior research on professional skepticism focuses on the individual auditing profession. However, many regulators point out that audit firms must promote skepticism within their firms (Audit Practice Board, 2010). Professional skepticism has been emphasized by auditing standards and encourages audit firms to implement skeptical judgments made by the audit engagement team (Wedemeyer, 2010). Furthermore, the internal audit departments operate and judge audit evidence, and perform as governance tools within the firms. This internal audit task is similar to the external auditors. Hence, it is reasonable to assume that the professional literature can also be applied to the internal audit departments (Carpenter, Reimers, and Fretwell, 2011; McCoy et al., 2011;Nelson, 2009).

In this research, internal audit skepticism is defined as the characteristics that enable the internal audit department to perform internal audit tasks with a questioning mind, being alert to irregular conditions, ongoing validated evidence, and conclusions. A scale to measure internal audit skepticism which is composed of: 1) questioning mindset integration, 2) uncertainty awareness and correction, 3) ongoing internal control monitoring, and, 4) internal audit review orientation (Laohamethanee and Ussahawanitchakit, 2012). In addition, a scale to measure professional skepticism based on the six characteristics of a skeptic comes that from knowledge and ethics. The six skepticism characteristics of a skeptic consist of: 1) suspension of judgment, 2) questioning mind, 3) search of knowledge, 4) interpersonal understanding, 5) self-confidence, and, 6)self-determination (Hurtt, 2007). Extending Nelson's model, auditors' fraud assessments, identification of fraud risk factors, and their selection of professional skepticism in 31 audit procedures, as a function of the partner's emphasis on skepticism and the presence of fraud (Carpenter and Reimers, 2011). They found that a high emphasis on skepticism increases auditors' assessments of the likelihood of

fraud. However, this happens both when fraud is present and when fraud is absent. High emphasis on skepticism also leads auditors to identify more fraud risk factors, and to select a greater number of relevant audit procedures. In summary, internal audit skepticism has the potential possibility to affect operational risk protection, financial information reliability, organization expenditure reduction, goal achievement, and firm value. Hence, the hypotheses are proposed as follows:

Hypothesis 5a: Internal audit skepticism has a positive influence on operational risk protection.

Hypothesis 5b: Internal audit skepticism has a positive influence on financial information reliability.

Hypothesis 5c: Internal audit skepticism has a positive influence on organization expenditure reduction.

Hypothesis 5d: Internal audit skepticism has a positive influence on goal achievement.

Hypothesis 5e: Internal audit skepticism has a positive influence on firm value.

Firm Value

At present, the views about the value of the firm have been very important in environmental and business goal changes that focus on creating value for the organization in order to survive and be sustained. Thus, the firm must seek and adapt to enhance organizational value.IIA (2012) suggests that internal auditing functions are the assurance and consulting activities designed to add value to the organization (IIA, 2012). Internal audit activities include monitoring financial activities, improving operations, ensuring the standards and legal compliance, and strategic achievement. Hence, internal audit activities intend to add more value than financial value to an organization.

The value of a firm cannot simply be described by traditional financial data. When considering the typical assets of a company, it may be noted that there is an increasingly larger portion of intangible assets in relation to the tangible ones. Past financial performance is no longer a good indicator of the future (Sauaia, 2014). An ideal performance measure reflects a manager's contribution to firm value, including both static externalities across business units and dynamic effects of current actions on long-run value (Baker, Gibbons, and Murphy, 1994; Gijsel, 2012). Prior research assert that non-financial measures increase firm value by assuring a balanced performance throughout the organization (Emeakponuzo**,** 2014; Kaplan and Norton, 1996).
Firm value can be considered as a social value or a non-financial measure (i.e., environmentally conservative image, fulfillment of stakeholders' needs, assurance of the effectiveness of the governance process, and creating a good attitude of the stakeholders toward the organization) (Brammer and Millington, 2005; Fernandez-Lenz and Sarens, 2012; Sontaite and Bakanauskas, 2011). This non-financial value may be important in achieving long-term profitability and a competitive advantage (Brammer and Millington, 2005; Ittner and Larcker, 1997). The above-mentioned role for internal auditing and its importance makes it a sensitive function that should be measured in order to evaluate its effectiveness and its added value to the organization (Zureigat and Al-Moshaigeh, 2014).

Firm value refers to performance of the business that can use resources to benefit fully and effectively under management to increase its value (Gomper, Ishii and Metrick, 2003) such as acceptance, reputation, image and trust. Creation of firm value may be used for accounting sustainability orientation, corporate governance establishment and/or social responsibility concentration. Hence, this research is focused on nonfinancial value which composes stakeholder acceptance, firm reputation, and firm image. Thus, in this research firm value refers to a stakeholder's perceived ability of a firm to add value and go toward organizational governance, and overall a stakeholder's impression to the attributes of a firm.

The Effect of Operational Risk Protection, Financial Information Reliability and Organization Expenditure Reduction on Goal Achievement

This section considers the effects of operational risk protection, financial information reliability and organization expenditure reduction on goal achievement as shown in Figure 3.

Figure 3: The Effects of Operational Risk Protection, Financial Information Reliability and Organization Expenditure Reduction on Goal Achievement

Operational Risk Protection

The profession of internal audit is fundamentally concerned with evaluating an organization's management of risk (Chartered Institute of Internal Auditors, 2016). All organizations face risks. The COSO framework defined risk as an event that is assembled from constraint and uncertainty, and which causes organizational failure. Generally, two elements of risk are divided into, namely, financial risk and operational risk (Kleffner, Lee, and McGannon, 2003). Operational risk is the risk of losses resulting from inadequate or failed internal processes, people and systems, or from external events. This definition includes legal risk, but excludes strategic risk and reputational risk (Basel Committee on Banking Supervision, 2005). The key to an organization's success is to manage those risks effectively or more effectively than

the competitors and as effectively as stakeholders' demands(Chartered Institute of Internal Auditors, 2016).

Within the business environment, the internal control system is important for organizations (Karagiorgos, Drogalas, and Dimou, 2010). Therefore, the role of the internal audit has been important in monitoring the internal controls within the entity, which is a key aspect of fraud prevention and detection (Gramling et al., 2004). Organized internal audit structure in the entity is responsible for operational risk assessment during the audit, it identifies the causes that led to its emergence, and it formulates proposals to eliminate the causes and reduce their level (Croitoru, 2014). Risk management is the art of good corporate governance. Risk management is not a fad, but provides the basis for implementing the principles of corporate governance and a shareholder organization which provide a guarantee regarding the use of the resources that they have provided. The main benefits of operational risk management are the increase of share value, operational risk protection, reputation protection, and low levels of operational losses. Further, the significance of effective internal control system and risk management assures that an organization is in the hands of efficient management with good sense and judgment, helping to successfully achieve an organization's objectives (Vijayakumar and Nagaraja, 2012). In this research, operational risk protection is defined as an outcome of managing and controlling various activities, including processes that can reduce the likelihood that it will cause damage to both the present and future, to acceptable levels.

Previous research shows that risk management is a strategy that can help to enhance the value-added quality of an organization; because risk management is the new strategic means that can link business strategy to day-to-day risks (KPMG, 2001). Accordingly, risk management can reduce earnings volatility, maximize value, and promote financial security in the organization (Lam (2003). The operations of risk management that help internal audit to improve the systems for managing the operational risk Laviada, 2007). Moreover, the internal audit has affected efficient risk management, and consequently, business success and work quality (Karagiorgos, Drogalas and Dimou, 2010). Importantly, a strong system of internal audit is good for an organization in risk management through early detection and prevention of errors and fraud which helps to achieve performance and profitability, and prevents loss of

revenues (Vijayakumar and Nagaraja, 2012). On the other hand, the internal audit function is not efficient and is not able to assist the firm in implementing inappropriate risk management (Tamosiuniene and Savcuk, 2007). However, operational risk protection has the potential possibility to provide greater firm value.

In summary, operational risk protection has the potential possibility to affect goal achievement. Hence, the hypothesis is proposed as follows:

Hypothesis 6 : Operational risk protection has a positive influence on goal achievement.

Financial Information Reliability

Any worldwide enterprise relies on two very important and integral components: accounting and auditing. The former one tracks all transactions of the firm and provides information via financial reporting, while audit is performed to indicate the correctness of this track and to ascertain the validity and reliability of information. The purpose of the audit is to enhance the degree of confidence of intended users in the financial statements by the expression of an opinion on whether the financial statements are prepared, in all material respects, and in accordance with an applicable financial reporting framework (IASB, 2010).The role of auditors in the financial statement has been, and continues to be, an important issue for the auditing profession. Auditors improve the quality, reliability and transparency of financial statements by lending credibility to the financial information disclosed by reducing the risk that the information is materially misstated (Madsen, 2013; Rezaee, 2005). The Sarbanes-Oxley Act assigned to the CEO and CFO the responsibility to certify the appropriateness of the financial statements and disclosures contained in the periodic report (Sec. 302), and stated the management's responsibility in establishing and maintaining an adequate internal control system (Sec. 404). Two key issues can be highlighted in relationship to this study: the strong relevance given to the reliability of financial information and the formalization of management's responsibility for the internal control structure. These two elements are particularly relevant in relationship to the activities of internal audit departments (Arena et al., 2006).

Financial information reliability refers to the quality of financial information that assures that information is reasonably free from error or bias and faithfully represents what it purports to represent. Financial information reliability is the neutral, complete and accurate information in financial reporting which must be a faithful representation of the real-world economic transactions and phenomena (IASB, 2009). The importance of financial information reliability depends on the usefulness of financial information to users. The financial information is presented in a financial statement, to a wide-range of users, such as owners or managers, investors, employees, governments, and financial institutions (Watts and Zimmerman, 1986). Thus, in this research, financial information reliability is referred to as neutral, complete, and accurate of information in financial reporting which must assure that information is reasonably free from error or bias, and is faithfully represented.

The quality of financial information, reliability, and transparency is the key factor of efficient capital markets. Auditing practice became more related to an enhancement role, with a special focus on integrity and credibility of the information that is provided in financial statements (Lee and Ali, 2008).Meanwhile, besides enchasing the credibility of financial statements, auditors nowadays are providing other services such as reporting on irregularities, identifying business risks, and management consulting on internal controls (Boynton, Jonson, and Kell, 2005). In other words, auditors are supposed to bridge the communication between the managers of the company and final users of published financial reports through authentication, reliability, and correctness of financial reporting (Salehi and Rostami, 2009). Meanwhile, the efficacy of internal audit influences operational performance via information reliability, operational effectiveness, efficiency, and legal compliance (Bianco and Casavola, 1999; Hoitash et al., 2009; Yang and Koo, 2012; Zhang, 2007). Consistent with the research of Al-Laith (2012), it is stated that information technology is important in a bank's internal audit system which impacts effective control within the bank. Hence, internal audit system, with the development of use of information technology, is to obtain financial statements of high reliability and to provide adequate and appropriate evidence to achieve the business goals. In summary, financial information reliability has the potential possibility to affect goal achievement. Hence, the hypothesis is proposed as follows:

Hypothesis 7 : Financial information reliability has a positive influence on goal achievement.

Organizational Expenditure Reduction

Organizations that view cost reduction initiatives as a strategic imperative that could potentially result in a competitive advantage, and that could approach an overall effort in an inclusive and methodical manner, will be much stronger when the economic cycle turns (Oates, 2011). Nonetheless, those organizations that approach cost reduction with the right mindset have a better chance of success than those which simply tamper on the periphery. Internal auditors serve a valuable role as internal, full-time monitors of their employing organization. They are a critical component of high-quality corporate governance (IIA 2005), and serve to mitigate earnings management (Prawitt et al., 2009), fraud (Beasley et al., 2000; Coram et al., 2008), and internal control problems (Krishnan, 2005). Given the important role internal auditing can play in monitoring organizations, external auditing standards (SAS No. 65 and AS 5) permit the external auditor to employ internal auditors in two ways: (1) employing the direct assistance of internal auditors in performing audit tasks, and (2) relying on relevant work previously completed by the internal audit function to reduce the amount of additional evidence the external auditor must obtain. In order to use either method, the standards require that the internal audit function have sufficient competency and objectivity. Reliance on the work of internal auditors can reduce costs to the external auditor by substituting the time and effort of the internal auditor for that of the external auditor. These cost savings are either captured by the external auditor or are passed on to the client in the form of lower external audit fees. Governing bodies and senior management rely on internal auditing for objective assurance and insight on the effectiveness and efficiency of governance, risk management and internal control processes. Assurance is that the organization is operating as management intends. Insight is for improving controls, processes, procedures, performance, and risk management; and for reducing expenses, enhancing revenues, and improving profits.

The general argument is that better governance reduces control risk, ensures high-quality auditing, and leads to a reduction in audit risk and fees (Aswadi Abdul Wahab et al., 2011; Bedard and Johnstone, 2004; Tsui et al., 2001). In a production

view, good corporate governance, such as the existence of independent board members, should improve the control environment and reduce the need for external auditing, leading to a reduction in audit fees. However, private sector internal audit is perceived to lead to a greater reduction in external audit fees compared to that in the public sector. Here then comes the role of internal audit which is to observe, to find, to evaluate and to advise management. For example, if the security of assets is or is not insured, a firm may have a low energy consumption and be favorable to environmental aspects; while, a reducing of energy costs would lead to an additional increase of profit. They become more and more efficient, although at a high cost, thus facilitating the work of employees and hence, labor productivity growth, being safely used by employees. Further, the benefit/cost relation will be higher than one (Maria, 2012). Lower external audit fees are associated with a larger internal audit department and certain activities carried out by the internal audit. Specifically, lower external audit fees are associated with more internal audit effort spent on activities relating to financial statements, systems development and maintenance, operating efficiency and effectiveness, fraud investigations and unlimited access to internal auditors' working papers. The contribution of the internal audit may substitute for some substantive external auditing processes and lower monitoring costs (Ho and Hutchinson, 2010). Fauver and Fuerst (2006) show that employee representation in boards delivering value for high quality corporate operational knowledge in making decisions, provides a powerful means to monitor and reduce agency costs in a company. From an agency perspective, the importance of strong governance stems from the need to align the interests of management with other stakeholders in the firm in order to reduce agency costs (Cohen et al., 2002). The substitution of internal auditing for external auditing using time-series data (Ettredge et al., 2000). All of these studies use agency theory to explain the use of internal audit as a monitoring mechanism to reduce agency costs (Adams, 1994).

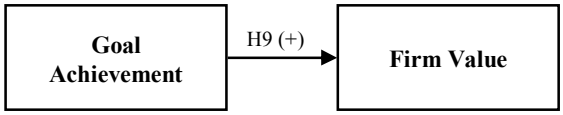
Based on the literature above, organizational expenditure reduction is an operational outcome that incurs costs during the operation of business that is lower than planned. In summary, organization expenditure reduction has the potential possibility to affect goal achievement. Hence, the hypothesis is proposed as follows:

Hypothesis 8 : Organizational expenditure reduction has a positive influence on goal achievement.

The Effect of Goal Achievement on Firm Value

This section considers the effects of goal achievement on firm value as shown in Figure 4.

Figure 4: The Effects of Goal Achievement on Firm Value



Goal Achievement

The economy is rapidly changing, so firms must continuously adapt by changing the policies, plans, operations, processes, internal environments, or business transactions (Danneel, 2002). In the past, the goal of the firm is a challenge that led to the implementation of an effective strategy, which linked the organization's mission, vision and strategic goals, and helps them achieve their firm's goals (Deepen, Goldsby and Knemeyer, 2008). Goal achievement is the representation of the final process in an operation which depends on the ability of the firm to create opportunities through business procedures, leading to continuously maximizing their profitability, market share and competitiveness in the long-term (Deepen et al., 2008; Mohamed, 2008). Goal achievement sustainability refers to the operational outcome that shows the performance of a firm, both financial and non-financial, that arises from an ability of a firm to plan and operate to achieve a goal continuously over the long-term (Holiday, 2001), by linking an organization's mission, vision, strategy and procedures to its goal (Sampattikorn and Ussahawanitchakit, 2012; Zaccaro and Klimoski, 2001). This also gives priority to creating valued stakeholders, all parties, and corporate governance, simultaneously including accountability to society and environment. This study is focused on financial performance which is sales growth, market share and profit.

This research defines goal achievement as an operational outcome linked to the mission, vision and strategies.

Owners of business determine the goals of their organizations, this goal being creating surplus value. Effective internal audit is expected to help organizations achieve objectives (Dittenhofer, 2001). An internal audit helps an organization accomplish its objectives (IIA, 2014). Similarly, internal audit's role in an organization helps organizations to achieve their goals (Gramling et al., 2004; Hass et al., 2006; Roth, 2003; Yee et al., 2008). The internal audit department seeks to provide assurance to the board and audit committee that internal controls are in place and the business is operating according to the rules and regulations in that assets are safeguarded against theft, pilferage or wastage (Gona et al., 2014).A sound internal audit department identifies the skills and resources that management needs to achieve its organizational objectives (The Price Waterhouse Coopers Guide, 2006).The internal audit function is a mechanism that helps formulate organization strategy and achieve its goals (Seminogovas and Rupsys, 2006). Internal audit also can add value by helping organizations achieve economy, efficiency and effectiveness (Al-Twaijry et al., 2003), and can influence what is reported in a company's external financial statements (Prawitt et al., 2009). Haat et al. (2008) found that corporate governance factors have strong predictive powers of company performance, that one of these factors is internal auditing, and that internal auditing's role in organizational goal achievement has been widely presented in the literature (Mehrit et al., 2010; Yee et al.,2008).This study goal achievement measures financial performance focus on a short term, which can also be classified as accounting-related performance measures, which are measures such as firm profit, earnings per share, sales growth or total shareholder return (Ibrahim and Lloyd, 2011). However, financial measures are important but not enough for a good performance evaluation system (Kaplan and Norton, 1992; Ibrahim, 1999). The system should also incorporate non-financial measures of performance. Firm value is created through different activities that promote critical success factors (Kelly, 2007). These factors include innovation, quality, productivity, and customer satisfaction. Success factors ultimately improve future financial performance (Gu, 2005). A current summary of financial measures that report financial results, such as operating income and return on investment, is unlikely to fully reflect the long-term consequences of these activities.

Hence, many firms complement summary financial measures with nonfinancial measures that reflect key value-creating activities (Kaplan and Norton, 2001).

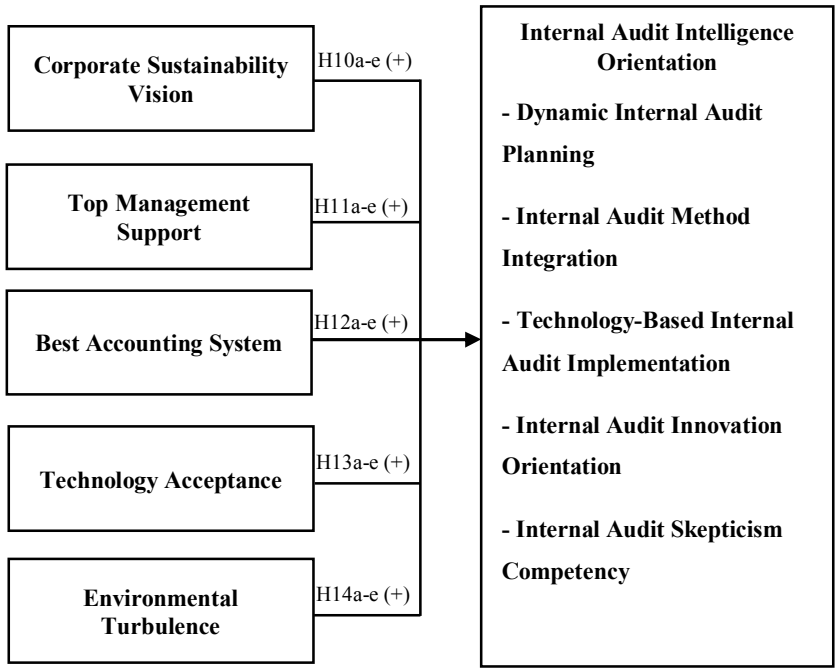
In summary, organizational expenditure reduction has the potential possibility to affect goal achievement. Hence, the hypothesis is proposed as follows:

Hypothesis 9 : Goal achievement has a positive influence on firm value.

The Effect of Antecedents on Internal Audit Intelligence Orientation

This section considers the effects of the antecedents of internal audit intelligence orientation that comprise corporate sustainability vision, top management support, best accounting system, technology acceptance, and environmental turbulence as shown in Figure 5.

Figure 5: The Effects of Corporate Sustainability Vision, Top Management Support, Best Accounting system, Technology Acceptance, and Environmental Turbulence on Internal Audit Intelligence Orientation



Corporate Sustainability Vision

In a time of globalization and a fast changing environment, the nature of the global economy is constantly evolving. Business leaders have to understand the importance of devoting efforts towards creating and maintaining a sustainable organization (Thiele, 2013). Sustainability is a widespread concept, which in the 21st century is not only the way of moving, but it is a needed step in order to be an accepted member of corporate society. Issues of corporate responsibility, ethical behavior and moral values need to be addressed and implemented, in order to achieve a superior business model (Taticchi, Carbone,and Albino, 2013). Enron, WorldCom and many other companies, which were behaving in a non sustainable way, neglected personal responsibility and ethical values, and are profound examples of how fast an organization can go down without a clear understanding of the importance of ethical decisions in the modern world (Boerner, 2014). It is important to take into account the context in which an organization works and where it will be operating in the future. Sustainability factors already have a strong influence on the investor's decision towards the choice of the company (Pizzani, 2015). Understanding sustainability from different perspectives, and accepting the multiplicity of the concept and its effect on the corporation's development, are issues that need to be focused upon. The new world needs recognition of the interrelatedness of things.

Much research in recent years has focused on the concept of corporate sustainability. Companies, society, and in particular, a growing number of consumers, are now more aware of what corporate sustainability is about. This is probably one major reason why more and more companies have begun to address ecological and social issues. Companies are faced with increasing regulation, intensifying stakeholder demands, and a highly dynamic market. The extent to which companies are committed to integrating corporate sustainability is often related to the potential benefits perceived in terms of cost reductions, efficiency gains, improvements in market position, image, and company reputation (Sukitsch et al.,2015). According corporate sustainability is a combination of economic success, environmental protection and social responsibility Bansal, 2005). The implementation of corporate sustainability can support long-term business success as well as contribute to improving living standards.

The durability of a corporation depends on, among other things, equitable distribution of risks and democratic management (Benn and Dunphy, 2007). Both of these issues are enhanced through better corporate governance and sustainability. Activities of the company in association with general economic development set out new environmental and social risks, and there is a strong demand from the society for these issues to be addressed. The fast spread of the corporate sustainability concept and its positive effect on the firm's value (Lo and Sheu, 2007). They also stress the fact that companies with sustainable strategies attract more investors.

Internal audit represents another important source of assurance services within a firm's corporate governance framework (Carcello, Hermanson, and Raghunandan 2005; Abbott, Parker, and Peters 2010; Trotman and Trotman, 2015). Internal audit represents an alternative to other assurance providers because it has the ability to add reliability to reported information and provide this benefit at a lower cost (Abbott, Parker, and Peters, 2011). Firms periodically disclose that internal audit has provided assurance over reported sustainability information, and on occasion, go so far as to provide internal audit assurance letters to accompany the public sustainability reports, simulating the external audit's assurance role. Internal audit provides sustainability report assurance and that future research should consider how the internal audit contributes to this market (Ridley, Silva, and Szombathelyi, 2011; Trotman and Trotman, 2015). Because of the increase in internal auditors providing sustainability report assurance and the fact that the sustainability report assurance is purely voluntary, it includes the internal audit as a possible choice for a sustainability report assurance provider in an analysis.

Sustainable vision has become more acceptable. It is not a new perspective for business executives, but they are trying to make the organization sustainably developed. In this view, it affects decision-making about the operations of the business. The vision emphasizes what is really important for an organization which should include future foresight with a main purpose. At present, the world is changing quickly, and adaptation to keep pace with these changes is important because it represents an advantage or disadvantage of the organization. If an organization can quickly adapt itself, it can survive in the long-term. Executives who had a vision about the changes that have evolved over time, will lead to the achievement of the goals (Bloomfield and

Vurdubakis, 1997). Moreover, to accomplish sustainable accounting requires support by a long-term vision that may require changes to current policies of management's vision which are significantly positive with supportive practice (Moore, Konrad and Hunt, 2010). In this research, corporate sustainable vision is defined as a view of the business focusing on the improvement and development in the ongoing work to add value to the business and sustainable growth in the long-term. Thus, the influence of a sustainable vision has the potential possibility to affect internal audit intelligence; thus, the hypotheses are proposed as follows:

Hypothesis 10a : Corporate sustainability vision has a positive influence on dynamic internal audit planning.

Hypothesis 10b : Corporate sustainability vision has a positive influence on internal audit method integration.

Hypothesis 10c : Corporate sustainability vision has a positive influence on technology-based internal audit implementation.

Hypothesis 10d : Corporate sustainability vision has a positive influence on internal audit innovation orientation.

Hypothesis 10e : Corporate sustainability vision has a positive influence on internal audit skepticism competency.

Top Management Support

Internal auditors have a close relationship with an organization's management in their day-to-day activities. They need good support and perception from their management to be more effective and to achieve the audit objectives. Top management support is expressed in terms of supporting the auditing process by fulfilling the necessary resources, finance, transport if required, providing training, introducing auditors with new technology and procedures, and budgeting funds for certification and other facilities that facilitate the internal auditing work (Hailemariam, 2014). With the

support of top management, internal auditors can obtain sufficient resources to execute their duties and responsibilities, and the internal audit department can hire qualified staff and provide continuous training and development (Alzeban and Sawan, 2013; Cohen and Sayag, 2010). Top management has an important say in the resources devoted to the internal audit units. They are also likely to give input to the internal audit work plan which provides the internal audit department with the empowerment required for it to perform its duties and responsibilities (Ali et al., 2007). Top management support has a far-reaching consequence on internal audit effectiveness in organizations. For example, internal audit effectiveness on the public sector, show that the component of top management support consists of the response to audit findings and the commitment to strengthen the internal audit which has a significance influence on internal audit effectiveness (Mihret and Yismaw, 2007). Given the fact that internal audit activities are performed in a dynamic management process, and in a more supportive environment, an internal auditor expects senior management to take the first steps to support the internal audit process. Because of this, Sarens and Beelde (2006) argue that the overall acceptance and appreciation of internal audit within the company is strongly dependent upon the support it receives from senior management. Internal audit actively seeks top management support with resources, and a commitment to promote and communicate their added value. Thus, in this study, top management support refers to supporting the auditing process by fulfilling the necessary resources, providing finances, providing transport if required, providing training, introducing auditors to new technology and procedures, and budgeting funds for certification and other facilities that facilitate the internal auditing work.

The manner in which senior management demonstrates its support likely provides an important signal of the role and value of internal auditing throughout the organization. This support, in turn, empowers the internal audit department to execute its duties and fulfill its responsibilities (Alzeban and Gwilliam, 2014). Top management support is almost crucial to the operations and the internal audit. This is because all other determinants of internal audit effectiveness are derived from the support of top management, given that hiring proficient internal audit staff, developing career channels for internal audit staff, and providing organizational independence for internal audit work are the results of decisions made by top management (Cohen and Sayag, 2010).

This means it is in the interest of management to maintain a strong internal audit department (Mihret and Yismaw, 2007). In addition to the implementation of the audit, recommendations are highly relevant to internal audit effectiveness (Sarens and Beelde, 2006; Van Gansberghe, 2005), which are the component of top management support (Mihret and Yismaw, 2007). The management of an organization is viewed as the customer receiving internal audit services. As a result, management's commitment to use audit recommendations and its support in strengthening internal audit is vital to internal audit effectiveness.

Previous studies cite support from top management as critical to the success of the internal audit function. The effectiveness of internal auditing in public organizations in Israel (Cohen and Sayag, 2010). Professional proficiency of internal auditors, quality of audit work, organizational independence, career, advancement, and top management support were the variables used to determine internal audit effectiveness. The findings of the study showed that top management support was the most crucial to the operation and success of the internal audit. This implied that other determinants of internal audit effectiveness depend on top management support for internal audit activity. Reporting on the Ethiopian public sector, found that the absence of top management support negatively affected the internal audit function by creating a poor attitude towards that function by nudities, who perceived it as unimportant because it appeared not to be high on the agenda of senior management (Mihret and Yismaw, 2007). Internal auditing in the public sector in four countries: Kenya, Uganda, Malawi, and Ethiopia. Their results indicated that to be effective, internal audits need management's acceptance and appreciation of the contribution and value that internal auditing can add to organizations (Van Gansberghe, 2005). The internal audit effectiveness would be enhanced by giving the department the right to allocate its overall budget (Baltci and Yilmaz, 2006). Without such empowerment, senior management might reduce resourcing when it feels threatened. Top management support might also be lacking if management fails to implement the recommendations of the internal audit; such indifference could greatly reduce the effectiveness of the function. Implementation of internal audit recommendations is considered a strong indicator of effectiveness. Based on the preceding discussion, the hypotheses are proposed as follows:

Hypothesis 11a :Top management support has a positive influence on dynamic internal audit planning.

Hypothesis 11b :Top management support has a positive influence on internal audit method integration.

Hypothesis 11c :Top management support has a positive influence on technology-based internal audit implementation.

Hypothesis 11d : Top management support has a positive influence on internal audit innovation orientation.

Hypothesis 11e : Top management support has a positive influence on internal audit skepticism competency.

Best Accounting System

Accounting systems generate accounting information that helps rationalize and support economic decisions. Moreover, an accounting system is connected with various administrative processes, makes the administrative process more effective in satisfying the needs of the organization's management, and raises the levels of performance in order to realize a goal (El-Dalabeeh and ALshbiel, 2012). Further, an accounting system has two main functions: 1) rendering account functions which are under the competence of financial accounting that is most-oriented towards demands of external users, and, 2) company management function which is under the competence of management accounting that is oriented toward demands of internal users (Knezevic, Stankovic, and Tepavac, 2012).

Likewise, accounting system competency is the ability of a system to link to subsystems of accounting, stability, ease of use, speed, easy maintenance and effective communication for user satisfaction (Harzallah and Vernadat, 2002). Similarly, accounting system records transactions and events are according to accounting standards in force, and provide procedures involving base information for periodic financial reports (Ewert and Wagenhofer, 2005). An accounting system as the system

designed to record the accounting transaction and events of a business, and account for them in a way that complies with its policies and procedures (Hussey, 2005). The accounting system is a consistent way of organizing, recording, summarizing and reporting financial transactions (Hartzell, 2006). The accounting system as a formal system for identifying, measuring, accumulating, analyzing, preparing, interpreting and communicating accounting information about a particular entity to a particular group (Ama, 2004). Moreover, an accounting system refers to an organized set of manual and computerized accounting methods, procedures, and controls established to gather, record, classify, analyze, summarize, interpret, and present accurate and timely financial data for management decisions (Business Online Dictionary, 2013). Thus, a firm that has the best accounting system can help evaluate its own past performance, present conditions, and future prospects. Consistently, the information produced by the accounting system provides an explanation for the usage of resources and operations (Kara and Kilic, 2011). Therefore, best accounting system refers to a suitable accounting system that continually improves and develops to analyze, summarize, interpret, and present accurate and timely accounting information.

Accounting system can be explained as a series of complex, interconnected activities requiring participants to have technical and managerial skills for resolving potential problems. Besides, best management accounting system can provide value-added information for managerial decision-making and control activity to achieve the department's performance objectives (Williams and Seaman, 2002). Similarly, accounting information system quality was positively related to the effectiveness of internal control and reliable decision-making (Ditkaew, 2013). Additionally, the company directors usually resort to quality cost and accounting systems to support decision-making processes (Sedevich Fons, 2012). These management control tools are often used separately, which promote ineffectiveness and inefficiency.

As earlier mentioned, best accounting system can be defined as a suitable and technological accounting system process; and an organized set of manual and computerized accounting methods, procedures, and controls established to gather, record, classify, analyze, summarize, interpret, and present accurate and timely accounting information for management decisions (Chaikambang and Ussahawanitchakit, 2012). Prior research showed that firms with a higher degree

of accounting system implementation effectiveness lead to higher degrees of information value (Al-Dalabeeh and Al-Zeaud, 2012). Beside, accountants increase participation in decision-making about design and development of their company's information system (IS), because they have knowledge of the business processes and expertise in accounting (Wang, Du, and Lehmann, 2010). It would be very beneficial for accountants to have understanding of the tasks and processes of information system design and implementation. Further, an accounting information system has significant effects on the quality of accounting information (Rahayu, 2012). Consistent with the knowledge of accounting managers and top management support the significant influence of accounting information systems (Komala, 2012). Besides, the quality of accounting information systems has an impact on the quality of accounting information as well. Hence, the result of best accounting system activity provides guidance, recommendations and value-added support in order to help decision-making. Thus, best accounting system will positively moderate the relationships among accounting governance (i.e. accounting standard concern, accounting practice disclosure, accounting ethics orientation, accounting reporting transparency, social impact focus), financial information reliability, operational value increase, and decision-making excellence. Hence, the hypotheses are proposed as follows:

Hypothesis 12a : Best accounting system has a positive influence on dynamic internal audit planning.

Hypothesis 12b : Best accounting system has a positive influence on internal audit method integration.

Hypothesis 12c : Best accounting system has a positive influence on technology-based internal audit implementation.

Hypothesis 12d : Best accounting system has a positive influence on internal audit innovation orientation.

Hypothesis 12e : Best accounting system has a positive influence on internal audit skepticism competency.

Technology Acceptance

The technology acceptance model explains the determinants of computer acceptance in general, and traces the impact of external factors on internal beliefs, attitudes, and intentions (Davis et al., 1989). The technology acceptance model assumes that acceptance is driven by the user's attitude towards the technology and that attitude is a function of its perceived usefulness of the technology and the perceived ease of use of the technology. System usage is the primary indicator of technology acceptance and is measured by frequency and time (Straub et al., 1995; Szajna, 1996). The primary internal beliefs for technology acceptance behaviors include perceived usefulness and perceived ease of use. Perceive usefulness and perceived ease of use have positive associations with technology acceptance (Parasuraman, 2000). Therefore, in this study, technology acceptance refers to an organization's beliefs, attitudes and intentions toward the technology by two related beliefs: perceived usefulness and perceived ease of use, in that firms tend to utilize technologies for accomplishing goals. Technology in this research, including computer hardware, software, and communication systems, enables a firm to manage time-consuming processes more rapidly. Technology acceptance is not only the transformation of internal data into useful information, but also the formation of links to external organizations. In other words, the utilization of technology can encourage inter organizational collaboration and coordination activity (Katila and Mang, 2003; Fagan, 2004). Therefore, technology acceptance leads to more active plans and strategies between partners (Seggie, Kim, and Cavusgil, 2006). When inter firm processes are contributed, network operations between organizations can be generated through the implementation of technology (Shervani and Srivastava, 2003; Gadde, Huemer, and Hakansson, 2003). Moreover, technology utilization which supports a relationship mindset is able to make it easy for smooth communication channels among parties (Schultz and Schultz, 1998). Besides, technology availability that provides more frequent interaction among organizations is utilized to advance connection activities among them. Likewise, technology availability can increase process innovations or improvements, and reduce operating costs (Goutsos and

Karacapilidis, 2004; Johnson, Sohi, and Grewal, 2004; Kim et al., 2009). Technology features have a large impact on technology acceptance in the internal audit profession as influencing system usage, perceived usefulness, and perceived ease of use. System usage, perceived usefulness, and perceived ease of use are high in basic features and low in advanced features. Technology features will have a large influence on technology acceptance in other professions.

Based on the discussions above, technology acceptance is an organization's beliefs, attitudes and intentions towards the technology, which consist of system usage, behavioral intention to use, attitude toward usage, perceived usefulness, and perceived ease of use. Hence, the hypotheses are proposed as follows:

Hypothesis 13a : Technology acceptance has a positive influence on dynamic internal audit planning.

Hypothesis 13b : Technology acceptance has a positive influence on internal audit method integration.

Hypothesis 13c : Technology acceptance has a positive influence on technology-based internal audit implementation.

Hypothesis 13d : Technology acceptance has a positive influence on internal audit innovation orientation.

Hypothesis 13e : Technology acceptance has a positive influence on internal audit skepticism competency.

Environmental Turbulence

In global business, the contingency theory's concept of a fit among the relevant business environment, strategy, and structure is well established in the strategic management literature (Johannesson and Palona, 2010). As businesses seek sustainable growth in global business, they need to have accurate and timely intelligence about

opportunities and threats in the international business environment as intelligence is the key input variable in all strategic decision-making (Johannesson and Palona, 2010).

Previous studies indicate that in the last two decades, the productive paradigm has shifted from manufacturing to service. The new core economies are based on information controls, and not on the physical product (Curado, 2006). Information technology advancement enables globalization which demands more timely, accurate, and reliable information (Brown, Wong, and Baldwin, 2007). In addition, since the accounting scandals of 2002, the Sarbanes-Oxley Act (SOX) has been enforced. The shift in regulation enables the intensive audit environment which requires the internal audit to provide more effective assurance services and expects the new role of the internal audit to function as independent business consultants (Brody and Lowe, 2000). Hence, a contemporary new role is focused on assurance and a consulting service with a risk management approach. The new role establishes the complex environmental factors dominated by economical, political, cultural, and social pressures (Arnold et al., 2001). An audit environment also includes independent rules and legal enforcement (Maijoor and Vanstraelen, 2006). Environmental turbulence, in the context of business, refers to the unpredictable and highly varied events which occur in the environment in which a particular industry operates (Boyne and Meier, 2009; Ko and Tan, 2012). Thus, in this research, environmental turbulence refers to the uncertainty of external factors that influence internal audit activities, including stakeholders' expectations and change in technology, legal, and professional standards.

Prior research indicates that stakeholders' expectations may positively affect internal audit practice. Environmental turbulence (i.e., globalization and stakeholder needs) encourages the internal audit to provide timely and accurate assurance of financial and operational information (Brown, Wong, and Baldwin, 2007; Gonzalez, Sharma, and Galletta, 2012). In contrast, some empirical evidence indicates that an audit environment may negatively impact audit practice. According to Arnold et al. (2001); Geiger and Raghunandan (2001); and Geiger and Rama (2006), reducing the litigation environment hada significant impact on audit judgment and audit opinion decision-making. However, this negative result has been investigated in the context of an external audit. Hence, the hypotheses are proposed as follows:

Hypothesis 14a : Environmental turbulence has a positive influence on dynamic internal audit planning.

Hypothesis 14b : Environmental turbulence has a positive influence on internal audit method integration.

Hypothesis 14c : Environmental turbulence has a positive influence on technology-based internal audit implementation.

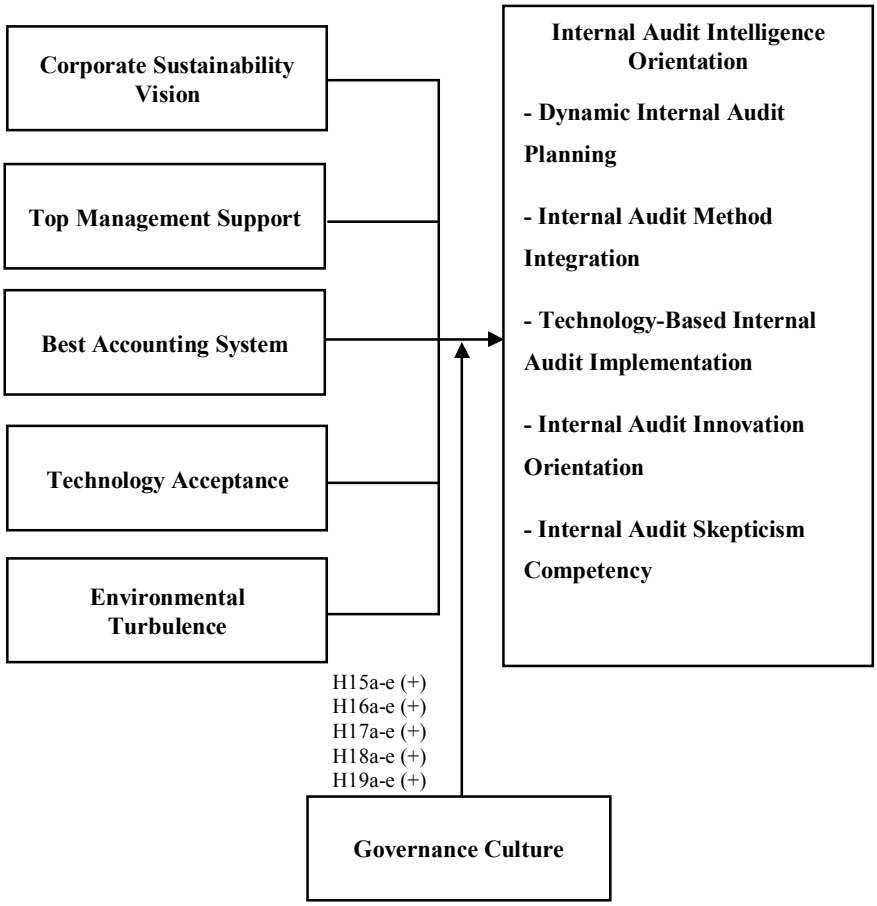
Hypothesis 14d : Environmental turbulence has a positive influence on internal audit innovation orientation.

Hypothesis 14e : Environmental turbulence has a positive influence on internal audit skepticism competency.

The Moderating Effect of Internal Audit Intelligence Orientation

This section emphasizes the moderating effect of governance culture on the relationships between internal audit intelligence orientation and its antecedents, including corporate sustainability vision, top management support, best accounting system, technology acceptance, and environmental turbulence as shown in Figure 6.

Figure 6: The Moderating Effect of Internal Audit Intelligence Orientation



Governance Culture

The current goals of a company focus on survival and sustainability of the business. Sustainability requires a dynamic equilibrium between maximizing wealth and going concern (Cairns and Saier, 2010). As a result, that makes the enterprise give priority to creating stakeholder value, both within and outside the organization, in the long run. Thus, the principles of corporate governance are a guideline to management in order for the firm to grow and survive (Hopwood, Unerman, and Fries, 2010). Moreover, it supports and encourages all sectors to hold to practices in order to become an organizational culture. Organizational culture can influence behavior and decision-making regarding the operations of individuals in an organization (Chow et al., 2002). Also, it may shape a managers' actions and decision-making, including the selection of control systems that lead to accounting practice effectiveness (Hanpuwadal and

Ussahawanitchakit, 2010). The focal points of governance culture consist of long-term sustainability which ranges from value creation for all stakeholders, to society being increasingly developed through the business governance control mechanisms (IFAC, 2010). Corporate governance is an important business agenda because it is a new tool for global governance concerns about ethical conduct in business, and it becomes as much about citizen engagement (Backstrand and Fellow, 2007). Also, an investor needs and wants to protect against the uncertainty of fraud and risk; and therefore, strong corporate governance is indispensable to serve their desires. Consequently, the transparency and accountability issues have been at the core of the international governance climate; greater levels of it lead to greater promoted investment in clear trust and commitment. Thus, firms that focus on corporate governance will give priority to practices for transparency and fairness.

In the literature, the concept of corporate governance includes elements of social responsibility, ethical business practices, issues referring to internal and external audit transparency, managers' responsibilities for the accuracy of information presented in financial reports, or communications and full transparency of the financial results (Ionescu, 2009). Credibility and transparency of financial information provided by the management of a company is strengthened by the independent audit role of an essential component of corporate governance monitoring on behalf of the owners/shareholders of the company activities. Internal audit provides independent verification of work managers. Given the contractual relationship between the owner (principal) and management (agent), the agency theory should be established and clarified to ensure that management acts in the best interests of the owner, including such monitoring by auditors (Lin and Liu, 2009). Corporate governance involves the relationship between stakeholders and business objectives. The various conflicts of interest between the company managers and owners (such as positive correlation between increased company size and remuneration of managers, from the study of Ileana, 2008), lead to compromising a company's financial performance. On the other hand, if the governance mechanisms are weak so they cannot control management decisions, the top management can diversify the company until it can no longer be profitable (Ileana, 2008). A key to improving economic efficiency is good corporate governance. Corporate governance is already fully recognized as critical in establishing an attractive

investment climate, characterized by the existence of competitive companies and efficient financial markets. The importance of efficient financial markets for economic growth is now supported, both macroeconomic and microeconomic, as well as the wider relationship between corporate governance decisions and economic growth (Morariu et al., 2009). Good governance in a company is a tool for organizational strategy and the key to performance. Corporate governance aims to increase the company's performance and to harmonize the various interest groups. Any interested company has an interest to continuously increase the effectiveness with which resources, material, financial and available human resources are managed and used (Morariu et al., 2009). Hence, firms that are more committed to a strong corporate governance culture are likely to engage in greater levels of internal auditing as well as being prepared to pay for a higher quality external audit. This view suggests that the internal audit function is unlikely to be restricted to activities directly related to external audit, and that firms more committed to strong corporate governance are likely to engage in both greater levels of internal auditing as well as external auditing.

Based on several literature reviews, Luo (2005) suggests that the value of governance culture brings stakeholders to receive reliable information and motivates a manager to maximize firm value instead of pursuing personal objectives. In other words, it is the greatest current challenge facing humanity, in the light of ethical culture (Hummer, Peet, and Vinchen, 2009). Consistent with this research, governance culture refers to an internal system encompassing policies, processes and people, which serve the needs of shareholders and other stakeholders, by directing and controlling management activities with good business savvy, objectivity, accountability and integrity. Hence, the hypotheses are proposed as follows:

Hypothesis 15a : Governance culture will positively moderate corporate sustainability vision – dynamic internal audit planning relationships.

Hypothesis 15b : Governance culture will positively moderate corporate sustainability vision – internal audit method integration relationships.

Hypothesis 15c : Governance culture will positively moderate corporate sustainability vision – technology-based internal audit implementation relationships.

Hypothesis 15d : Governance culture will positively moderate corporate sustainability vision – internal audit innovation orientation relationships.

Hypothesis 15e : Governance culture will positively moderate corporate sustainability vision – internal audit skepticism competency relationships.

Hypothesis 16a : Governance culture will positively moderate top management support – dynamic internal audit planning relationships.

Hypothesis 16b : Governance culture will positively moderate top management support – internal audit method integration relationships.

Hypothesis 16c : Governance culture will positively moderate top management support – technology-based internal audit implementation relationships.

Hypothesis 16d : Governance culture will positively moderate top management support – internal audit innovation orientation relationships.

Hypothesis 16e : Governance culture will positively moderate top management support – internal audit skepticism competency relationships.

Hypothesis 17a : Governance culture will positively moderate best accounting system – dynamic internal audit planning relationships.

Hypothesis 17b : Governance culture will positively moderate best accounting system – internal audit method integration relationships.

Hypothesis 17c : Governance culture will positively moderate best accounting system – technology-based internal audit implementation relationships.

Hypothesis 17d : Governance culture will positively moderate best accounting system – internal audit innovation orientation relationships.

Hypothesis 17e : Governance culture will positively moderate best accounting system – internal audit skepticism competency relationships.

Hypothesis 18a : Governance culture will positively moderate technology acceptance – dynamic internal audit planning relationships.

Hypothesis 18b : Governance culture will positively moderate technology acceptance – internal audit method integration relationships.

Hypothesis 18c : Governance culture will positively moderate technology acceptance – technology-based internal audit implementation relationships.

Hypothesis 18d : Governance culture will positively moderate technology acceptance – internal audit innovation orientation relationships.

Hypothesis 18e : Governance culture will positively moderate technology acceptance – internal audit skepticism competency relationships.

Hypothesis 19a : Governance culture will positively moderate environmental turbulence – dynamic internal audit planning relationships.

Hypothesis 19b : Governance culture will positively moderate environmental turbulence – internal audit method integration relationships.

Hypothesis 19c : Governance culture will positively moderate environmental turbulence – technology-based internal audit implementation relationships.

Hypothesis 19d : Governance culture will positively moderate environmental turbulence – internal audit innovation orientation relationships.

Hypothesis 19e : Governance culture will positively moderate environmental turbulence – internal audit skepticism competency relationships.

Summary

This chapter describes the conceptual model of internal audit intelligence orientation and firm value which is supported by the theoretical framework including the resource-advantage theory and the contingency perspectives. In addition, this chapter provides the relevant literature review, hypotheses development, and a set of 19 testable hypotheses. Internal audit intelligence orientation is the key construct of this research in which the research intends to prove its effect on firm value through its consequences, including operational risk protection, financial information reliability, organizational expenditure reduction, and goal achievement. This research also proposes the antecedents of internal audit intelligence orientation, including corporate sustainability vision, top management support, best accounting system, technology acceptance, and environmental turbulence to test their impact on internal audit intelligence orientation. In addition, governance culture is proposed as the moderator to prove its effect on the relationships between internal audit intelligence orientation and its five antecedents. Table 3 shows the summary of all hypothesized relationships.

The next chapter will explain the research methods, including the population and sample selection, the data collection procedure, the variable measurement of each construct, the statistics and equations to test the hypotheses, and a summary of the theoretical and operational definitions.

Table 3: Summary of Hypothesized Relationships

Hypothesis	Description of Hypothesized Relationships
H1a	Dynamic internal audit planning has a positive influence on operational risk protection.
H1b	Dynamic internal audit planning has a positive influence on financial Information reliability.
H1c	Dynamic internal audit planning has a positive influence on organizational expenditure reduction.

Table 3: Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships
H1d	Dynamic internal audit planning has a positive influence on goal achievement.
H1e	Dynamic internal audit planning has a positive influence on firm value.
H2a	Internal audit method integration has a positive influence on operational risk protection.
H2b	Internal audit method integration has a positive influence on financial Information reliability.
H2c	Internal audit method integration has a positive influence on organizational expenditure reduction.
H2d	Internal audit method integration has a positive influence on goal achievement.
H2e	Internal audit method integration has a positive influence on firm value.
H3a	Technology-based internal audit implementation has a positive influence on operational risk protection.
H3b	Technology-based internal audit implementation has a positive influence on financial Information reliability.
H3c	Technology-based internal audit implementation has a positive influence on organizational expenditure reduction.
H3d	Technology-based internal audit implementation has a positive influence on goal achievement.
H3e	Technology-based internal audit implementation has a positive influence on firm value.
H4a	Internal audit innovation orientation has a positive influence on operational risk protection.
H4b	Internal audit innovation orientation has a positive influence on financial Information reliability.
H4c	Internal audit innovation orientation has a positive influence on organizational expenditure reduction.
H4d	Internal audit innovation orientation has a positive influence on goal achievement.

Table 3: Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships
H4e	Internal audit innovation orientation has a positive influence on firm value.
H5a	Internal audit skepticism competency has a positive influence on operational risk protection.
H5b	Internal audit skepticism competency has a positive influence on financial Information reliability.
H5c	Internal audit skepticism competency has a positive influence on organizational expenditure reduction.
H5d	Internal audit skepticism competency has a positive influence on goal achievement.
H5e	Internal audit skepticism competency has a positive influence on firm value.
H6	Operational risk protection has a positive influence on goal achievement.
H7	Financial Information reliability has a positive influence on goal achievement.
H8	Organizational expenditure reduction has a positive influence on goal achievement.
H9	Goal achievement has a positive influence on firm value.
H10a	Corporate sustainability vision has a positive influence on dynamic internal audit planning.
H10b	Corporate sustainability vision has a positive influence on internal audit method integration.
H10c	Corporate sustainability vision has a positive influence on technology-based internal audit implementation.
H10d	Corporate sustainability vision has a positive influence on internal audit innovation orientation.
H10e	Corporate sustainability vision has a positive influence on internal audit skepticism competency.

Table 3: Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships
H11a	Top management support has a positive influence on dynamic internal audit planning.
H11b	Top management support has a positive influence on internal audit method integration.
H11c	Top management support has a positive influence on technology-based internal audit implementation.
H11d	Top management support has a positive influence on internal audit innovation orientation.
H11e	Top management support has a positive influence on internal audit skepticism competency.
H12a	Best accounting system has a positive influence on dynamic internal audit planning.
H12b	Best accounting system has a positive influence on internal audit method integration.
H12c	Best accounting system has a positive influence on technology-based internal audit implementation.
H12d	Best accounting system has a positive influence on internal audit innovation orientation.
H12e	Best accounting system has a positive influence on internal audit skepticism competency.
H13a	Technology acceptance has a positive influence on dynamic internal audit planning.
H13b	Technology acceptance has a positive influence on internal audit method integration.
H13c	Technology acceptance has a positive influence on technology-based internal audit implementation.
H13d	Technology acceptance has a positive influence on internal audit innovation orientation.
H13e	Technology acceptance has a positive influence on internal audit skepticism competency.

Table 3: Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships
H14a	Environmental turbulence has a positive influence on dynamic internal audit planning.
H14b	Environmental turbulence has a positive influence on internal audit method integration.
H14c	Environmental turbulence has a positive influence on technology-based internal audit implementation.
H14d	Environmental turbulence has a positive influence on internal audit innovation orientation.
H14e	Environmental turbulence has a positive influence on internal audit skepticism competency.
H15a	Governance culture will positively moderate corporate sustainability vision – dynamic internal audit planning relationships.
H15b	Governance culture will positively moderate the corporate sustainability vision – internal audit method integration relationships.
H15c	Governance culture will positively moderate corporate sustainability vision – technology-based internal audit implementation relationships.
H15d	Governance culture will positively moderate corporate sustainability vision – internal audit innovation orientation relationships.
H15e	Governance culture will positively moderate corporate sustainability vision – internal audit skepticism competency relationships.
H16a	Governance culture will positively moderate top management support – dynamic internal audit planning relationships.
H16b	Governance culture will positively moderate top management support – internal audit method integration relationships.
H16c	Governance culture will positively moderate managements support – technology-based internal audit implementation relationships.
H16d	Governance culture will positively moderate managements support – internal audit innovation orientation relationships.
H16e	Governance culture will positively moderate managements support – internal audit skepticism competency relationships.

Table 3: Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships
H17a	Governance culture will positively moderate best accounting system – dynamic internal audit planning relationships.
H17b	Governance culture will positively moderate best accounting system – internal audit method integration relationships.
H17c	Governance culture will positively moderate best accounting system – technology-based internal audit implementation relationships.
H17d	Governance culture will positively moderate best accounting system – internal audit innovation orientation relationships.
H17e	Governance culture will positively moderate best accounting system – internal audit skepticism competency relationships.
H18a	Governance culture will positively moderate technology acceptance – dynamic internal audit planning relationships.
H18b	Governance culture will positively moderate technology acceptance – internal audit method integration relationships.
H18c	Governance culture will positively moderate technology acceptance – technology-based internal audit implementation relationships.
H18d	Governance culture will positively moderate technology acceptance – internal audit innovation orientation relationships.
H18e	Governance culture will positively moderate technology acceptance – internal audit skepticism competency relationships.
H19a	Governance culture will positively moderate environmental turbulence – dynamic internal audit planning relationships.
H19b	Governance culture will positively moderate environmental turbulence – internal audit method integration relationships.
H19c	Governance culture will positively moderate environmental turbulence – technology-based internal audit implementation relationships.
H19d	Governance culture will positively moderate environmental turbulence – internal audit innovation orientation relationships.
H19e	Governance culture will positively moderate environmental turbulence – internal audit skepticism competency relationships.

CHAPTER III

RESEARCH METHODS

The previous chapter describes the definition of each construct covering the relationships among internal audit intelligence orientation and its consequence including operational risk protection, financial information reliability, organizational expenditure reduction, goal achievement, and firm value, along with comprehension about the theoretical foundations that involve literature reviews, the conceptual framework, and the hypotheses development. In addition, this chapter details the research methodology to find the answers to the research objectives, the research questions, and the hypotheses testing as specified. The research methods comprise four parts as follows: Firstly, the sample selection and data collection procedure, together with population and sample, data collection, and test of non-response bias are elaborated. Secondly, it introduces the variable measurements in each construct. Thirdly, this part demonstrates the instrumental verifications involving the test of validity, reliability, and statistical analysis. Finally, the table of summary of definition and operational variables of constructs is included.

Sample Selection and Data Collection Procedure

Population and Sample

The population and sample of this research are all 594 Thai-listed firms in Thailand. Thai-listed firms tend to implement internal audit control for risk management purposes. The internal audit function is necessary as an assistant of the audit committee in performing its responsibilities effectively. The key informant is the internal audit executive, internal audit director or internal audit manager of each firm for high, rich information in internal audit intelligence. This research chooses Thai-listed firms in The Stock Exchange of Thailand (SET) as the population and sample. This is because Thailand has a mandate from its respective stock exchange/government that requires listed companies to have an internal audit function, whether in-house or outsourced (Asian Confederation of Institutes of Internal Audit, 2015). Thus, the

relationship needs to be investigated. In addition, there has been little previous empirical research investigating the influence of internal audit intelligence orientation on firm value.

The database in this research is drawn from The Stock Exchange of Thailand on its website: www.set.or.th. Based on this SET database, there are 594 listed firms as of March 31, 2017. The sample was selected by using Taro Yamane (1967) to calculate the sample size because appropriate for behavioral research and social sciences research, exact population is known (finite population) and know confidence coefficient. This formula was used to calculate the sample sizes for a population with a 95% confidence level, and a 5% sample error was considered. The calculation sample size is proposed as follows:

$$\text{Formula} \qquad n = \frac{N}{1 + N\,(e)^2}$$

Where:

n = Sample size

N = Number of population

e = Acceptable error (0.05)

$$\text{Thus, } n = (594)/\,[1 + (594 \times (0.05)^2)]$$

$$n \approx 240$$

The sample size was calculated to be 240 firms. According to Aaker, Kumar and Day (2001), the acceptable response rate of social science research will be accepted at a 20% or greater response rate for a questionnaire mailing survey without an appropriate follow-up procedure. Therefore the formula was used to calculate the sample size to send questionnaires by using the acceptable response rate for a population as follows:

n = Sample size / accepted response rate

= (240 x 100) /20

= 1,200

This study was required to send questionnaires, totaling 1,200 firms, for acceptance at a 20% or greater response rate for a questionnaire mailing survey. However, the online database of the listed firms in Thailand provided a total of 594 firms. Thus, the source of the data utilized in this research was collected through a population of 594Thai-listed firms in Thailand.

Data Collection

This research used the questionnaire as an instrument for data collection. In order to complete and mostly comprehend all subjects, the internal audit executive, internal audit director or internal audit manager is identified as the key informant because these positions have a major responsibility in the internal audit function of the organization. In quantitative research, the key informant is a considerable factor affecting the reality of the information for analysis and gives the true understanding of its business (Campbell, 1995).

The questionnaire is separated into seven sections. The first section is the general information of respondents such as gender, age rank, social status, educational degree, period of worked in the field, salary average per month and position. The second section is the general background information of an organization such as business type, firm capital, total assets, firm age and CG scoring of listed firms. The third section is the key concept of internal audit intelligence orientation that has five dimensions: dynamic internal audit planning, internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. The fourth section is the consequence variables of internal audit intelligence orientation that are composed of operational risk protection, financial information reliability, organizational expenditure reduction, goal achievement, and firm value. The fifth section is the antecedent of internal audit intelligence orientation which is an operating request in five variables: corporate sustainability vision, top management support, best accounting system, technology acceptance, and environmental turbulence. The sixth section is the moderating effect of governance culture. The last section is for an open-ended answer that is requested from respondents. Comprehensively, there are 67 items in the rating scale of the questionnaire. Also, the detail of the questionnaire is attached in the Appendix F (English version) and Appendix G (Thai version).

The mail was sent directly to the internal audit director or internal audit manager of each listed firm in Thailand by post. The plan was to collect the data within eight weeks. In the first stage, the questionnaire was answered and returned to the researcher in the first four weeks. After four weeks, in order to increase the response rate, a follow-up telephone call was conducted for those individuals who had not returned the surveys (Lamberti and Noci, 2010). Then, the completed questionnaires were sent back to the researcher by the prepared return envelopes for ensuring confidentiality. Each package of the instrument consists of a cover letter containing an explanation of the research, a questionnaire, and a postage-prepaid return envelope.

The number of questionnaires was directly distributed to 594 listed firms. The successful questionnaire mailing was 593 surveys, and one was undelivered due to relocation. The first stage received 103 responses; but after follow-up, it increased by 33 responses, totaling 136 responses. Two questionnaires had no key informant. Thus, 134 questionnaire responses were returned and usable. This research uses all of the received questionnaires, which produced a response rate for regression analysis. The effective response rate was approximately 22.60 percent. The response rate in this research was consistent with Aaker, Kumar and Day (2001) in that the response rate for a mail survey (without an approximate appropriate follow-up procedure, and if greater than 20 percent), is considered acceptable. The details of questionnaires returned are presented in Table 4.

Table 4: Details of Questionnaire Mailing

Details	**Numbers**
Number of questionnaires mailed	594
Number of undelivered questionnaire	1
Number of successful questionnaire mailed	593
Number of received questionnaire	136
Number of questionnaires incomplete	2
Number of Usable questionnaires	134
Response Rate (134/593) x 100	22.60

Test of Non-Response Bias

In regards to Armstrong and Overton (1977), a t-test comparison of demographics information (i.e. firm age and firm size) between first respondent and second respondents are tested to prevent and assure against possible response bias problems. By extrapolation methods, the assumption is that subjects who answer later, or require more prodding to answer, are more likely to be treated as non-respondents. If there are no statistically significant differences between first respondent and second respondents, then there is no non-response bias between respondents and non-respondents (Lewis, Hardy and Snaith, 2013; Rogelberg and Stanton, 2007).

A total of 134 return questionnaires are divided into two groups: the first 67 responses are stored as the early respondents and another 67 responses are stored as the late respondents. The t-test statistic is employed to verify the difference of firm capital, total assets, firm period operation in SET, and CG scoring. The results are illustrated as follows: firm capital ($t = -0.422$, $p > 0.05$), total assets ($t = 0.080$, $p > 0.05$), firm period operation in SET ($t = -0.526$, $p > 0.05$), and CG scoring ($t = -1.542$, $p > 0.05$). These results indicate that there were no statistically significant differences between early and late groups at a 95% confidence level. Therefore, it can be stated that the non-response bias is not a problem in this research (Armstrong and Overton, 1977). The results of non-response bias are demonstrated in Appendix C.

Measurements

In measuring each construct in the conceptual model, multiple item measurement processes were developed. Since constructs are abstractions that cannot be directly measured or observed, they should be measured by multiple items (Churchill, 1979). Moreover, using multiple items provides a wider range of the content of conceptual definition, and improvement of reliability (Neuman, 2006). In this research, all constructs are transformed into operational variables to gain more accuracy in measuring research constructs. All variables are derived from the definition and previous literature, by a five-point Likert scale, ranging from 1 (strongly disagree), to 5 (strongly agree). In summary, all operational definitions of each construct which are comprised of the dependent variable, the independent variables, the moderating variables, and the controlled variables, are described below.

Dependent Variable

Firm Value

Firm value refers to a stakeholder's perceived ability of the firm to add value and go toward organizational governance, and is the overall stakeholder's impression towards the attributes of a firm. Firm value is measured by four-items which are adapted from Laohamethanee and Ussahawanitchakit (2013).To measure this construct, this research considers stakeholder acceptance, firm reputation firm image and firm survival.

Independent Variables

The independent variables are five dimensions of internal audit intelligence orientation. It is a key construct of this research which includes the following: dynamic internal audit planning, internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. These five dimensions reflect the internal audit intelligence orientation.

Dynamic Internal Audit Planning

Dynamic internal audit planning refers to the ability of organizations to design activities based on risk analysis to determine the priorities of the internal audit activity, consistent with the organizational goal, which design activities can change or modify, be flexible, and be adaptable to business environmental change. This construct is developed as a new scale from the definition and literature, including a five-item scale.

Internal Audit Method Integration

Internal audit method integration refers to the competency of firms to combine the ability of the chief audit executive, audit method, audit risk procedure and cooperation of all units to identify and manage potential uncertainty in each activity of the firms. This construct is developed as a new scale from the definition and literature, including a five-item scale.

Technology-Based Internal Audit Implementation

Technology-based internal audit implementation refers to the ability of an organization to implement tools and computerized systems that can automate an aspect of internal audit work, which technology is consisting of computer, website, and the internet to assist the examination of the data, and identify patterns and potential risks to ensure that the data is complete, accurate, timely and available. This construct is developed as a new scale from the definition and literature, including a four-item scale.

Internal Audit Innovation Orientation

Internal audit innovation orientation refers to new or developed internal audit strategies and techniques that the internal auditor uses to conduct internal audit activities about risk assessment, internal control, and consulting for management to increase the efficiency and effectiveness of internal audit activities and focus on a participative internal audit. This construct is developed as a new scale from the definition and literature, including a four-item scale.

Internal Audit Skepticism Competency

Internal audit skepticism competency refers to the characteristics that enable the internal audit department to perform internal audit tasks with a questioning mind, being alert to irregular conditions, ongoing validated evidence, and conclusions. This construct is developed from Laohamethanee and Ussahawanitchakit (2013), including a five-item scale.

Consequence Variables

The consequence variables of internal audit intelligence orientation include operational risk protection, financial information reliability, organization expenditure reduction, and goal achievement. The measurement of each variable is discussed in the following.

Operational Risk Protection

Operational risk protection refers to an outcome of managing and controlling various activities, including processes that can reduce the likelihood that it will cause

damage to both the current and future, to acceptable levels. This construct is developed as a new scale from the definition and literature, including a five-item scale.

Financial Information Reliability

Financial information reliability refers to the neutral, complete, and accurate information in financial reporting which must assure that information is reasonably free from error or bias and is faithfully represented. This construct is developed as a new scale from the definition and literature, including a four-item scale.

Organizational Expenditure Reduction

Organization expenditure reduction refers to operational outcomes that incur costs during the operation of a business, which is lower than planned. This construct is developed as a new scale from the definition and literature, including a four-item scale.

Goal Achievement

Goal achievement refers to an operational outcome linked to the mission, vision and strategies. This construct is developed from Pongpanpattana and Ussahawanitchakit (2013) and Sahayrak and Ussahawanitchakit (2015), including a four-item scale.

Antecedent Variables

The internal and external factors are treated as the antecedents of internal audit intelligence orientation. The internal factors include corporate sustainability vision, top management support, and best accounting system. The external factor is technology acceptance and environmental turbulence. The measurement of each variable is discussed in the following.

Corporate Sustainability Vision

Corporate sustainability vision refers to a view of the business focusing on the improvement and development in the ongoing work to add value to the business and sustainable growth in the long-term. This construct is developed as a new scale from the definition and literature, including a four-item scale.

Top Management Support

Top managements support refers to supporting the auditing process by fulfilling the necessary resources, providing finances, and transport if required, providing training, introducing auditors with new technology and procedures, and budgeting funds for certification and other facilities that facilitate the internal auditing work. This construct is developed from Asaolu, Adedokun and Monday (2016) and Hailemariam (2014), including a four-item scale.

Best Accounting System

Best accounting system refers to a suitable accounting system that continually improves and develops to analyze, summarize, interpret, and present accurate and timely accounting information. This construct is developed from Chaikambang and Ussahawanitchakit (2012), and El-Dalabeeh and AL shbiel (2012), including a four-item scale.

Technology Acceptance

Technology acceptance refers to an organization's beliefs, attitudes and intentions towards technology, which consist of system usage, behavioral intention to use, attitude toward usage, perceived usefulness, and perceived ease of use. This construct is developed from Vasarhelyi et al. (2012), including a four-item scale.

Environmental Turbulence

Environmental turbulence refers to the uncertainty of external factors that influence internal audit activities, including stakeholders' expectations and change in technology, legal, and professional standards. This construct is developed from Laohamethanee and Ussahawanitchakit (2012), including a four-item scale.

Moderating Variable

The moderating variable is governance culture. The measurement of each variable is described as the following.

Governance Culture

Governance culture refers to an internal system encompassing policies, processes and people, which serve the needs of shareholders and other stakeholders, by directing and controlling management activities with good business savvy, objectivity, accountability and integrity. This construct is adapted from Thaweechan and Ussahawanitchakit (2011), including a four-item scale.

Control Variables

The control variables of this research are corporate governance award and firm age in SET which may affect firm value. Prior research suggests that the age of the firm influences a firm's ability to accomplish superior performance (Tantiset and Ussahawanitchakit, 2010).In addition, previous research studies firm value and firm performance which has the control variables, including firm size and firm age (Connelly, Limpaphayom, and Nagarajan, 2012; Mashayekhi and Bazaz, 2008). Therefore, for the reliability of the results, this research includes corporate governance award and firm age in SET as control variables to cover all factors which may impact firm value.

Corporate governance award

Corporate success may be influenced by corporate governance award because it may achieve superior performance (Brown and Caylor, 2009). In addition, corporate governance award indicates the main factors pursuing corporate success and corporate competitive advantage (Bebchuck, Cohen, and Wang, 2010; Gompers, Ishii, and Metrick, 2003). Moreover, the existing literature has found that levels in corporate governance award are contemporaneously correlated with firm performance (Cheung et al., 2011; Gawer, 2009; Manescu, 2011). The corporate governance award of listed companies in Thailand is prepared by the Stock Exchange of Thailand. The corporate governance survey will have a rating called "CG scoring."In this research, corporate governance award is represented by a dummy variable in which "0" means a corporation has a CG scoring lower than "very good," and "1" means a corporation has a CGscoring more than or equal to "very good."

Firm Age

Firm age has an impact on internal audit activities (Doyle, Ge and McVay, 2007). Firm age refers to the period of time the firm has been in business (Biddle, Hilary and Verdi, 2009). The empirical evidence suggests that there is a clear relationship between firm age and growth (Capelleras and Rabetino, 2008). The questions in the questionnaire for the requirement of the number of operational years is divided into dummy variables in which "0" means that the firm has been in business less than 15 years, and "1" means the firm has been in business 15 years or more (Kaneko, Ussahawanitchakit and Muenthaisong, 2013).

Methods

In this research, most of the constructs in the conceptual model are newly developed. Consequently, a pre-test method is appropriately conducted to assert the validity and reliability of the questionnaire. Firstly, the questionnaire will be double-checked by a specialist and experienced scholars. Later, the rationale of the pre-test will be conducted to check for a clear and accurate understanding of the questionnaire before using real data collection.

Validity and Reliability

Validity reflects the accuracy of the measurement that evinces the concept of consideration (Hair et al., 2010). In order to verify the research instrument accuracy and validity, two types of validity, comprising content validity and construct validity, are tested.

Content validity. Content validity involves "the systematic examination of the test content to determine whether it covers a representative sample of the behavior domain to be measured" (Anastasi and Urbina, 1997). It refers to the degree to which the essence of the scale represents the construct being measured (Thoumrungroje, 2013). Content validity requires two or more experts in academic research to review and suggest better solutions to ensure that all questions are sufficient to cover the domain of the variable content. With regard to the relevant theory and literature review, each of the

items in a questionnaire will be subjectively assessed by a specialist and related academic expert. The details of expertise are show in Appendix H.

Construct validity. Construct validity refers to a set of measured items that actually reflects the theoretical latent construct that those items are designed to measure (Hair et al., 2006). If the scale really reflects and indicates its designated construct, then convergent validity and discriminant validities should be established. Convergent validity demonstrates items that are indicators of a specific construct convergence, or share a high proportion of variances in common (Hair et al., 2010). It is the accuracy of a scale in correlating with other scales that are designed to measure the same construct (Thoumrungroje, 2013). Discriminant validity is the extent to which a construct is truly distinct from other constructs (Hair et al., 2010). It is the accuracy of a scale in distinguishing itself from other scales to measure a different construct (Thoumrungroje, 2013).In addition, factorial validity is also used to examine construct validity. Factorial validity tests by using factor analysis, it is applied to identify important factors, and reduce low correlated items. Moreover, to ensure the construct validity, the size of the factor loading must be greater than the 0.40 cut-off and be statistically significant (Nunnally and Berstein, 1994).

In this research, construct validity is illustrated by convergent validity. Convergent validity demonstrates that the items are indicators of a specific construct converge or share a high proportion of variance in common. Therefore, the high values of factor loading were considered in a specific construct. Table 5 shows the factor loadings of the multi-item measurement. The construct validity is loaded on a single factor and the range of factor loading is between 0.688 and 0.961. These scales are greater than 0.4, which indicate construct validity acceptance (see also Appendix D).

Table 5:Results of Validity Testing

Variables	Factor Loadings
Dynamic Internal Audit Planning (DIAP)	.691 - .887
Internal Audit Method Integration (IAMI)	.701 - .879
Technology-based Internal Audit Implementation (TIAI)	.790 - .913
Internal Audit Innovation Orientation (IAIO)	.902 - .961
Internal Audit Skepticism Competency (IASC)	.688 - .938
Operational Risk Protection (ORP)	.739 - .877
Financial Information Reliability (FIR)	.866 - .940
Organization Expenditure Reduction (OER)	.772 - .902
Goal Achievement (GOA)	.838 - .942
Firm Value (FIV)	.824 - .934
Corporate Sustainability Vision (CSV)	.796 - .879
Top Managements Support (TMS)	.911 - .919
Best Accounting System (BAS)	.795 - .922
Technology Acceptance (TEA)	.779 - .947
Environmental Turbulence (ENT)	.703 - .817
Governance Culture (GOC)	.885 - .936

Reliability. Reliability is the degree to which the measurement is trusted and error-free (Hair et al., 2010). In this research, the Cronbach's alpha coefficient will be used to test the internal consistency of each construct. Internal consistency is an approach to evaluate the consistency or reliability within a collection of multiple items that represent the scale (Thoumrungroje, 2013). Coefficient alpha or Cronbach's alpha will be employed to estimate the reliability. Accordingly, Cronbach's alpha should be greater than 0.70 to ensure internal consistency (Nunnally and Bernstein, 1994; Hair et al., 2006). Moreover, the minimum thresholds for item reliability are arbitrary, and the scale of item total correlation should exceed 0.3 to indicate acceptance of item reliability (Thoumrungroje,2013).As shown on Table 6, the result of all reliability in both Cronbach's alpha coefficients and item total correlation are demonstrated. Cronbach's alpha is a range between 0.730 and 0.949, which exceeds 0.70, to indicate

high reliability. Moreover, the item total correlations were scaled from 0.489 to 0.945 in that all scales exceed 0.3; this research shows that item reliability is acceptable.

Table 6:Results of Reliability Testing

Variables	Item total correlation	Cronbach Alpha
Dynamic Internal Audit Planning (DIAP)	.529 - .775	.820
Internal Audit Method Integration (IAMI)	.559 - .793	.862
Technology-based Internal Audit Implementation (TIAI)	.628 - .823	.863
Internal Audit Innovation Orientation (IAIO)	.830 - .927	.949
Internal Audit Skepticism Competency (IASC)	.541 - .841	.882
Operational Risk Protection (ORP)	.581 - .795	.869
Financial Information Reliability (FIR)	.768 - .876	.914
Organization Expenditure Reduction (OER)	.600 - .799	.846
Goal Achievement (GOA)	.717 - .885	.907
Firm Value (FIV)	.706 - .876	.909
Corporate Sustainability Vision (CSV)	.644 - .756	.840
Top Managements Support (TMS)	.840 - .854	.933
Best Accounting System (BAS)	.654 - .847	.883
Technology Acceptance (TEA)	.627 - .892	.875
Environmental Turbulence (ENT)	.475 - .600	.730
Governance Culture (GOC)	.798 - .884	.938

Statistical Techniques

Before hypotheses testing, all of the raw data was checked, encoded, and recorded in a data file. Then, the assumption basis of regression analysis, such as the outlier, missing data, normality, linearity, and multicollinearity was tested. Moreover, the results of assumption testing are shown in Appendix E.

Descriptive analysis Descriptive analysis provides basic verification data that is obtained from the profile of key informants and listed firms. Generally, to check the input data from respondents that are correct within the range, both frequency and percentage are simplified by testing. Moreover, the analysis regarding standard deviation is measured by a score spread from the average (Trainor et al., 2014).

Variance inflation factor. To deal with the multicollinearity problem, this research will employ a variance inflation factor (VIF) and a tolerance value as indicators to indicate a high degree of multicollinearity among the independent variables. Regarding Hair and colleagues (2006), when a tolerance value must be greater than 0.10 and the VIF should be less than 10, then multicollinearity is not a concern (Hair et al., 2010).In this research, an analysis of collinearity statistics indicates that the range of VIF values is 1.046 – 5.244, which indicates that there is no multicollinearity problem.

Correlation analysis. Correlation analysis will be illustrated to test the correlation among all variables, and a correlation matrix will be provided to show the intercorrelations among all variables for the initial analysis. If the variables become highly correlated, the correlation coefficient is greater than 0.8, and it shows significance, then multicollinearity may occur (Hair et al., 2010; Homberg, Artz and Wieseke, 2012). Consequently, factor analysis will be used to group highly-correlated variables together, and the factor score of all variables are prepared to avoid the multicollinearity problem. In this research, the factor analysis was used to group highly-correlated variables together, and the factor score of all variables was prepared to avoid the multicollinearity problem. Consequently, the relationships between independent variables are notproblematic and are shown in Table 8 (Chapter four).

Multiple regression analysis. The Ordinary Least Squares (OLS) regression analysis is used to test all postulated hypotheses. Since both dependent and independent variables in this research are categorical data and interval data, OLS is an appropriate method for examining the hypothesized relationships (Hair et al., 2010). As a result, all proposed hypotheses in this research are transformed into nineteen statistical equations.

Each equation conforms to the hypothesis development described in the previous chapter. Moreover, the statistical equations are separated into sections as follows.

The first section contains statistical equations examining the relationships among internal audit intelligence orientation on operational risk protection, financial information reliability, organization expenditure reduction, goal achievement, and firm value.

Equation 1: $ORP = \alpha_1 + \beta_1 DIAP + \beta_2 IAMI + \beta_3 TIAI + \beta_4 IAIO + \beta_5 IASC + \beta_6 CGA + \beta_7 FAS + \varepsilon_1$

Equation 2: $FIR = \alpha_2 + \beta_8 DIAP + \beta_9 IAMI + \beta_{10} TIAI + \beta_{11} IAIO + \beta_{12} IASC + \beta_{13} CGA + \beta_{14} FAS + \varepsilon_2$

Equation 3: $OER = \alpha_3 + \beta_{15} DIAP + \beta_{16} IAMI + \beta_{17} TIAI + \beta_{18} IAIO + \beta_{19} IASC + \beta_{20} CGA + \beta_{21} FAS + \varepsilon_3$

Equation 4: $GOA = \alpha_4 + \beta_{22} DIAP + \beta_{23} IAMI + \beta_{24} TIAI + \beta_{25} IAIO + \beta_{26} IASC + \beta_{27} CGA + \beta_{28} FAS + \varepsilon_4$

Equation 5: $GOA = \alpha_5 + \beta_{29} ORP + \beta_{30} FIR + \beta_{31} OER + \beta_{32} CGA + \beta_{33} FAS + \varepsilon_5$

Equation 6: $FIV = \alpha_6 + \beta_{34} DIAP + \beta_{35} IAMI + \beta_{36} TIAI + \beta_{37} IAIO + \beta_{38} IASC + \beta_{39} CGA + \beta_{40} FAS + \varepsilon_6$

Equation 7: $FIV = \alpha_7 + \beta_{41} GOA + \beta_{42} CGA + \beta_{43} FAS + \varepsilon_7$

The second section shows statistical equations examining the effects of the antecedent variables on internal audit intelligence orientation. In addition, the influences of governance culture, as a moderator, are also included as shown below.

Equation 8: $DIAP = \alpha_8 + \beta_{44} CSV + \beta_{45} TMS + \beta_{46} BAS + \beta_{47} TEA + \beta_{48} ENT + \beta_{49} CGA + \beta_{50} FAS + \varepsilon_8$

Equation 9: $DIAP = \alpha_9 + \beta_{51} CSV + \beta_{52} TMS + \beta_{53} BAS + \beta_{54} TEA + \beta_{55} ENT + \beta_{56} GOC + \beta_{57}(CSV*GOC) + \beta_{58}(TMS*GOC) + \beta_{59}(BAS*GOC) + \beta_{60}(TEA*GOC) + \beta_{61}(ENT*GOC) + \beta_{62} CGA + \beta_{63} FAS + \varepsilon_9$

Equation 10: IAMI = $\alpha_{10} + \beta_{64}CSV + \beta_{65}TMS + \beta_{66}BAS + \beta_{67}TEA + \beta_{68}ENT + \beta_{69}CGA + \beta_{70}FAS + \varepsilon_{10}$

Equation 11: IAMI = $\alpha_{11} + \beta_{71}CSV + \beta_{72}TMS + \beta_{73}BAS + \beta_{74}TEA + \beta_{75}ENT + \beta_{76}GOC + \beta_{77}(CSV*GOC) + \beta_{78}(TMS*GOC) + \beta_{79}(BAS*GOC) + \beta_{80}(TEA*GOC) + \beta_{81}(ENT*GOC) + \beta_{82}CGA + \beta_{83}FAS + \varepsilon_{11}$

Equation 12: TIAI = $\alpha_{12} + \beta_{84}CSV + \beta_{85}TMS + \beta_{86}BAS + \beta_{87}TEA + \beta_{88}ENT + \beta_{89}CGA + \beta_{90}FAS + \varepsilon_{12}$

Equation 13: TIAI = $\alpha_{13} + \beta_{91}CSV + \beta_{92}TMS + \beta_{93}BAS + \beta_{94}TEA + \beta_{95}ENT + \beta_{96}GOC + \beta_{97}(CSV*GOC) + \beta_{98}(TMS*GOC) + \beta_{99}(BAS*GOC) + \beta_{100}(TEA*GOC) + \beta_{101}(ENT*GOC) + \beta_{102}CGA + \beta_{103}FAS + \varepsilon_{13}$

Equation 14: IAIO = $\alpha_{14} + \beta_{104}CSV + \beta_{105}TMS + \beta_{106}BAS + \beta_{107}TEA + \beta_{108}ENT + \beta_{109}CGA + \beta_{110}FAS + \varepsilon_{14}$

Equation 15: IAIO = $\alpha_{15} + \beta_{111}CSV + \beta_{112}TMS + \beta_{113}BAS + \beta_{114}TEA + \beta_{115}ENT + \beta_{116}GOC + \beta_{117}(CSV*GOC) + \beta_{118}(TMS*GOC) + \beta_{119}(BAS*GOC) + \beta_{120}(TEA*GOC) + \beta_{121}(ENT*GOC) + \beta_{122}CGA + \beta_{123}FAS + \varepsilon_{15}$

Equation 16: IASC = $\alpha_{16} + \beta_{124}CSV + \beta_{125}TMS + \beta_{126}BAS + \beta_{127}TEA + \beta_{128}ENT + \beta_{129}CGA + \beta_{130}FAS + \varepsilon_{16}$

Equation 17: IASC = $\alpha_{17} + \beta_{131}CSV + \beta_{132}TMS + \beta_{133}BAS + \beta_{134}TEA + \beta_{135}ENT + \beta_{136}GOC + \beta_{137}(CSV*GOC) + \beta_{138}(TMS*GOC) + \beta_{139}(BAS*GOC) + \beta_{140}(TEA*GOC) + \beta_{141}(ENT*GOC) + \beta_{142}CGA + \beta_{143}FAS + \varepsilon_{17}$

Where;

DIAP = Dynamic Internal Audit Planning

IAMI = Internal Audit Method Integration

TIAI = Technology-based Internal Audit Implementation

IAIO = Internal Audit Innovation Orientation

IASC = Internal Audit Skepticism Competency

ORP	=	Operational Risk Protection
FIR	=	Financial Information Reliability
OER	=	Organization Expenditure Reduction
GOA	=	Goal Achievement
FIV	=	Firm Value
CSV	=	Corporate Sustainability Vision
TMS	=	Top Management Support
BAS	=	Best Accounting System
TEA	=	Technology Acceptance
ENT	=	Environmental Turbulence
GOC	=	Governance Culture
CGA	=	Corporate Governance Award
FAS	=	Firm Age
α	=	Constant
β	=	Regression Coefficient
ε	=	Error Term

Summary

This chapter summarizes the research methods used in the investigation for this research, from simple selection to data gathering, examining all constructs purposed in the conceptual model, and answering the research questions. To be specific, there are four main parts in this chapter: (1) sample selection and data collection procedures, (2) measurement of variables, (3) verification of instruments, and (4) statistical techniques. A total list of 594listed firms in Thailand were provided by The Stock Exchange of Thailand. The key informants completing the questionnaires are the marketing managers or marketing directors. Moreover, a valid and reliable questionnaire is the primary instrument of data collection. This chapter also provides the measurements of each construct in the model, which are based on the existing literature. For multiple regression analysis, nineteen testable, statistical equations are formulated. Finally, a summary of the constructs' definitions and the operational explanation is given in Table 7.

Table 7: Definitions and Operational Variables of Constructs

Construct	Definition	Operational Variables	Scale Source
	Dependent variable		
Firm Value (FIV)	Stakeholder's perceived ability of firm to add value and toward organizational governance, and overall stakeholder's impression towards the attributes of a firm.	The level of firm's non-financial performance such as stakeholder acceptance, firm image, and firm reputation.	Laohamethanee and Ussahawanitchakit (2013)
	Independent variables		
Dynamic Internal Audit Planning (DIAP)	The ability of organizations to design activities base on risk analysis to determine the priorities of the activity, consistent with the organizational goal, which design activities can change or modify, be flexible, and adaptable to business environmental change.	The degree of an organization to change or modify the planning, and to be flexible, as well as adaptable, to business environment change and firm emphasizes on reviewing and improves of planning.	New scale
Internal Audit Method Integration (IAMI)	The competency of firms to combine the knowledge and skill of the chief audit executive, audit method and audit risk procedure to identify and manage potential uncertainty in each activity of the firms.	The degree of firm to interconnect knowledge, skill, experience, various method, and audit risk procedure for internal audit activity.	New scale

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

Construct	Definition	Operational Variables	Scale Source
		Independent variables	
Technology-Based Internal Audit Implementation (TIAI)	The ability of an organization to use tools and computerized system to assist the examination of the data, and identify patterns and potential risks to ensure that the data is complete, accurate, timely and available.	The degree of firm to implement audit technology, audit software, computer and training of staff to assist for examines the data and identifies patterns and potential risk, to ensure the data completeness, accuracy, timeline and availability.	New scale
Internal Audit Innovation Orientation (IAIO)	New or developed internal audit strategies and techniques that the internal auditor uses to risk assessment, internal control, and consulting for management and focus on a participative internal audit.	The degree of firm to practical application new method or technique about risk assessment, internal control and consulting to management for increase the efficiency and effectiveness of internal audit activity and participative of internal audit team.	New scale
Internal Audit Skepticism Competency (IASC)	The characteristics that enable the internal audit department to perform tasks with a questioning mind, being alert to irregular conditions, ongoing validated evidence, and conclusions.	The degree of firm's specific knowledge and capabilities of due care judgment, awareness of fraud risk indicators and red flag of error, ongoing internal control monitoring and internal audit review.	Laohamethanee and Ussahawanitchakit (2013)

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

Construct	Definition	Operational Variables	Scale Source
	Consequence variables		
Operational Risk Protection (ORP)	An outcome of managing and controlling various activities, including processes can reducing the likelihood that it will cause damage to both the current and future, to levels acceptable.	The level of firm to reduce or control the likelihood of an error, risk diversification, avoid uncertainty, and mistake monitoring.	New scale
Financial Information Reliability (FIR)	The neutral, complete, and accurate of information in financial reporting which must be assures that information is reasonably free from error or bias and faithfully represents.	The level of neutral, complete andaccurate of information, understanding of actual economic and comparability.	New scale
Organization Expenditure Reduction (OER)	An operational outcome that make cost incurred during the operational of business is lower than planned.	The level of firm to reduce operation expenditure, and operation expenditure less than prior period.	New scale
Goal Achievement (GOA)	An operational outcome linked to the mission, vision and strategies.	The level of firm's financial performance over the prior year, such as sale growth, market share, and net profit.	Pongpanpattana and Ussahawanitchakit (2013) and Sahayrak and Ussahawanitchakit (2015)

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

Construct	Definition	Operational Variables	Scale Source
	Antecedent variables		
Corporate Sustainability Vision (CSV)	A view of the business focusing on the improvement and development in the ongoing work to add value to the business and sustainable growth in the long-term.	The level of corporate response vision to sustainable growth in the long-term, participative of design vision, supporting the research and develop, and advanced technology.	New scale
Top Managements Support (TMS)	Supporting the auditing process by fulfilling the necessary resources, finances, transport if required, providing training, introducing auditors with new technology and procedures, and budgeting funds for certification and other facilities that facilitate the internal auditing work.	The level of firm to supporting the operation such as resource, budget, training, develop management system, and management technique implementation.	Asaolu, Adedokun and Monday (2016) and Hailemariam (2014)
Best Accounting System (BAS)	A suitable computerized records of financial transactions that continually improves and develops to analyze, summarize, interpret, and present accurate and timely accounting information.	The level of accounting system process, which is a technological and organized set of manual and computerized accounting methods, procedures; and presents accurate and timely accounting data for management decisions.	Chaikambang and Ussahawanitchakit (2012) and El-Dalabeeh and AL shbiel (2012)

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

Construct	Definition	Operational Variables	Scale Source
	Antecedent variables		
Technology Acceptance (TEA)	An organization's beliefs, attitudes and intentions towards the technology, which consist of system usage, behavioral intention to use, attitude toward usage, perceived usefulness, perceive ease of use.	The level of system usage, behavioral intention to use, attitude toward using, perceived usefulness, perceived ease of use.	Vasarhelyi et al. (2012)
Environmental Turbulence (ENT)	The uncertainty of external factors that influence internal audit activities, including stakeholders' expectations and change in technology, legal, and professional standards	The level of perceptions of the stakeholders' expectation, change in technology, regulation, and professional standards.	Laohamethanee and Ussahawanitchakit(2012)
	Moderating variable		
Governance Culture (GOC)	An internal system encompassing policies, processes and people, which serve the needs of shareholders and other stakeholders, by directing and controlling management activities with good business savvy, objectivity, accountability and integrity.	The level of compliance with regulations and awareness of their duties and responsibility to society.	Thaweechan and Ussahawanitchakit (2011)

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

Construct	Definition	Operational Variables	Scale Source
	Control variables		
Corporate governance award (CGA)	Evaluate CG scoring of listed companies by the Stock Exchange of Thailand.	Dummy variable 0 = a corporate has CG scoring lower than "very good", and 1 = a corporate has CG scoring more than or equal to "very good"	The Stock Exchange of Thailand (2016)
Firm Age (FAS)	The period of time the firm has been in business	Dummy variable 0= 15 years or less than, 1= the firm has been in business equal or more than 15 years	Kaneko, Ussahawanitchakit and Muenthaisong (2013)

CHAPTER IV

RESULTS AND DISCUSSION

The previous chapter describes the research methods which engage the sample selection and data collection procedure, variable measurement, data analysis, and equations. Accordingly, research methods help to clearly answer the testable hypotheses in order to respond to the research objectives and research questions. This chapter describes respondent characteristics, and descriptive statistics as well and the results of the hypotheses testing. This chapter is organized as follows. Firstly, the respondents' and firms' characteristics are presented. Secondly, the hypotheses testing and results are detailed. Finally, the summary of all hypotheses testing is included in Table 15.

Respondent Characteristics and Descriptive Statistics

Respondent Characteristics

In this research, the respondents are internal audit directors or internal audit managers who are expected to have the best knowledge of internal audit intelligence orientation of their organization. A total of 134 respondents presented the demographic characteristics that are shown in Table 1A (Appendix A). Approximately 54.48 percent of key informants are female. The rank of age is more than 50 years old of those who most participated in the questionnaire (37.30 percent).The respondents are generally married (58.86 percent). The education level of the majority of respondents is higher than a bachelor's degree (65.67 percent). In addition, 47.76 percent of respondents have worked in the field more than 14 years. Moreover, the averages alary per month of respondents is less than 100,000 baht (54.48 percent). Finally, the majority of the respondents hold the position of internal audit manager (72.20 percent).

Firm Characteristics

The characteristics of 134 listed firms in Thailand that responded to the survey are shown in Table 1B (Appendix B). The majority of business types were property and

construction (19.41 percent). With regard to firm capital, it was found that the majority of listed firms have a budget of less than one billion baht (38.81 percent). The total assets of the respondents is less than ten billion baht (41.79 percent). The majority of a firm's period of operation in SET is more than 15 years (55.97 percent). Finally, it was found that most of the CG Scoring of listed firms was very good (35.07 percent).

Correlation Matrix of Variables Analysis

A bivariate correlation analysis of Pearson's Correlation is employed to explore the relationships among variables and detect multicollinearity in multiple regression assumptions. Accordingly, Hair et al. (2010) stated that multicollinearity might occur when the inter correlation in each predicted variable is more than 0.80, which has a high relationship. In this research, the bivariate correlation procedure is scaled to a two-tailed test of statistical significance at $p < 0.01$ and $p < 0.10$, of which the result is shown in Table 8.

For correlation analysis, the empirical evidence suggests that there are relationships among the five dimensions of internal audit intelligence orientation ($r = .247 - .585$, $p < .01$). Likewise, the correlations among the same level of consequents, including operational risk protection, financial information reliability, organizational expenditure reduction, goal achievement, and firm value are positively correlations ($r = .355 - .718$, $p < .01$). Moreover, there are positive relationships among the antecedents including corporate sustainability vision, management support, best accounting system, technology acceptance, and environmental turbulence ($r = .035 - .646$, $p < .01$). Accordingly, the results of correlation between the same level of variables indicate that all concerned bivariate correlation values do not exceed 0.80. In other words, no problem with multicollinearity was found.

Table 8: Correlation Matrix of Internal Audit Intelligence Orientation, Its Consequents, Antecedents, and Moderating Variables

Variable	DIAP	IAMI	TIAI	IAIO	IASC	ORP	FIR	OER	GOA	FIV	CSV	TMS	BAS	TEA	ENT	GOC	CGA	FAS
Mean	4.327	4.288	4.078	4.207	4.205	3.910	4.362	3.677	3.696	4.021	4.097	4.170	4.267	4.276	4.271	4.320	.582	.559
S.D.	.512	.557	.705	.636	.608	.505	.567	.624	.725	.673	.571	.626	.628	.540	.532	.632	.495	.498
DIAP	1.000																	
IAMI	.381**	1.000																
TIAI	.354**	.334**	1.000															
IAIO	.584**	.309**	.290**	1.000														
IASC	.307*	.585**	.492**	.247	1.000													
ORP	.143	.355**	.327**	.329**	.508**	1.000												
FIR	.365**	.322**	.262**	.272**	.467**	.365**	1.000											
OER	.090	.280**	.512**	.333**	.562**	.818**	.355**	1.000										
GOA	.259**	.299**	.203*	.292**	.371**	.607**	.634**	.579**	1.000									
FIV	.120	.316**	.160	.515**	.387**	.521**	.561**	.473**	.630**	1.000								
CSV	.404**	.471**	.384**	.329**	.387**	.580**	.338**	.462**	.397**	.278**	1.000							
TMS	.576**	.441**	.547**	.523**	.523**	.569**	.374**	.574**	.330**	.352**	.471**	1.000						
BAS	.333**	.289**	.239**	.243**	.378**	.461**	.220*	.319**	.391**	.154	.392**	.113	1.000					
TEA	.333**	.333**	.515**	.458**	.501**	.661**	.249**	.827**	.433**	.424**	.035	.450**	.093	1.000				
ENT	.379**	.363**	.360**	.471**	.463**	.613**	.215**	.609**	.523**	.451**	.315**	.394**	.393**	.646**	1.000			
GOC	.418**	.421**	.456**	.382**	.419**	.406**	.332**	.414**	.318**	.280**	.636**	.503**	.244**	.176*	.143	1.000		
CGA	.119	-.008	.098	.052	.029	.201*	.217*	.084	.377**	.227**	.206**	.097	.092	-.010	.141	.195*	1.000	
FAS	.073	.016	-.106	.246**	.084	-.005	-.030	-.035	.012	.111	-.024	.003	.156	-.042	.009	-.025	.102	1.000

** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed)

Hypotheses Testing and Results

Multiple regressions by Ordinary Least Squares (OLS) regression analysis was used to analyze the data. OLS is an appropriate method for testing the hypothesized relationships because it can best explain and predict the dependent variable from the combination of several independent variables. All hypotheses were transformed into 17 linear regression equation models. In addition, all equations included two dummy variables generated from two control variables, namely, corporate governance award and firm age as follows.

The Relationship Between Each Dimension of Internal Audit Intelligence Orientation and Its Consequences

As show in Figure 7, the relationships of each dimension of internal audit intelligence orientation and its consequences are represented in hypotheses H1a-e to H5a-e.A positive relationship is posited in each hypothesis. Thus, these hypotheses can be converted to the regression equation in equations 1, 2, 3, 4, and 6.

Figure 7: The Relationship between Each Dimension of Internal Audit Intelligence Orientation and Its Consequences

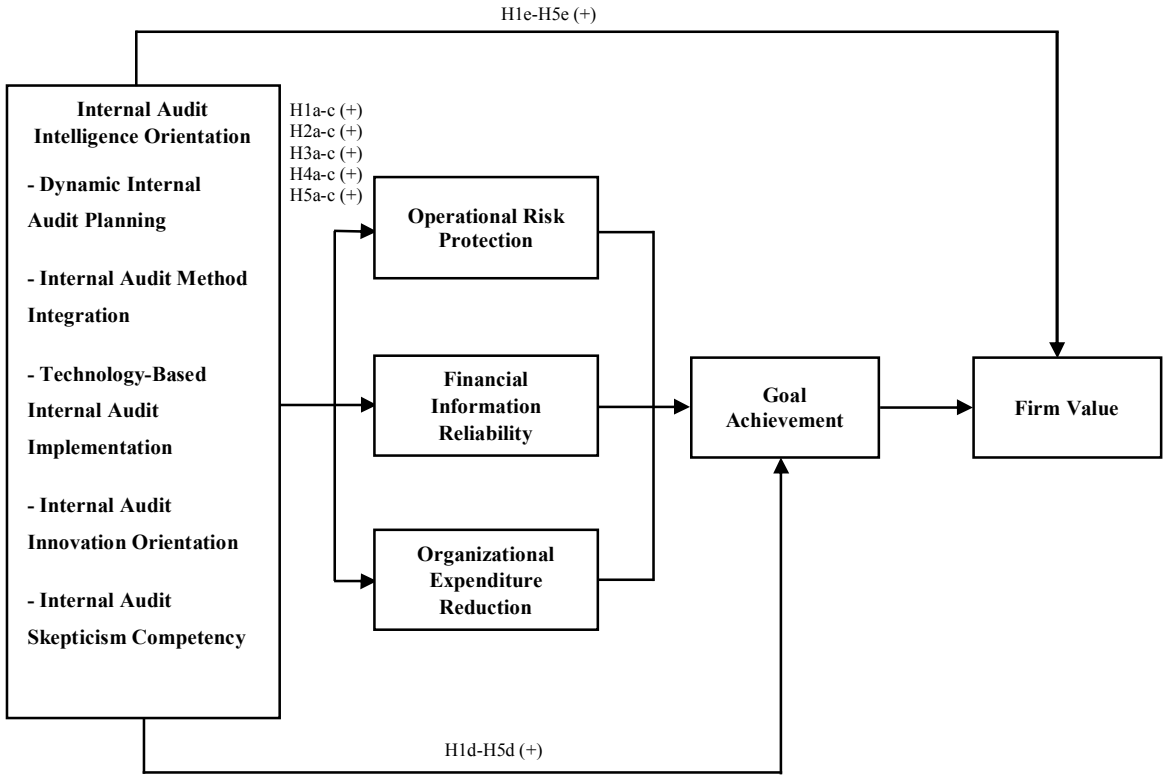


Table 9: Correlation Matrix of Each Dimension of Internal Audit Intelligence Orientation and Its Consequences

Variable	DIAP	IAMI	TIAI	IAIO	IASC	ORP	FIR	OER	GOA	FIV	CGA	FAS
Mean	4.327	4.288	4.078	4.207	4.205	3.910	4.362	3.677	3.696	4.021	.582	.559
S.D.	.512	.557	.705	.636	.608	.505	.567	.624	.725	.673	.495	.498
DIAP	1.000											
IAMI	.381**	1.000										
TIAI	.354**	.334**	1.000									
IAIO	.584**	.309**	.290**	1.000								
IASC	.307*	.585**	.492**	.247	1.000							
ORP	.143	.355**	.327**	.329**	.508**	1.000						
FIR	.365**	.322**	.262**	.272**	.467**	.365**	1.000					
OER	.090	.280**	.512**	.333**	.562**	.718**	.355**	1.000				
GOA	.259**	.299**	.203*	.292**	.371**	.607**	.634**	.579**	1.000			
FIV	.120	.316**	.160	.515**	.387**	.521**	.561**	.473**	.630**	1.000		
CGA	.119	-.008	.098	.052	.029	.201*	.217*	.084	.377**	.227**	1.000	
FAS	.073	.016	-.106	.246**	.084	-.005	-.030	-.035	.012	.111	.102	1.000

** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed)

Table 9 demonstrates the correlation among each dimension of internal audit intelligence orientation and its consequences. Firstly, the relationship of the dynamic internal audit planning has a positive correlation to operational risk protection ($r = 0.143$, $p > 0.05$), financial information reliability ($r = 0.365$, $p < 0.01$), organizational expenditure reduction ($r = 0.090$, $p > 0.05$), goal achievement ($r = 0.259$, $p < 0.01$), and firm value ($r = 0.120$, $p > 0.01$). Secondly, the relationship of the internal audit method integration has a positive correlation to operational risk protection ($r = 0.355$, $p < 0.01$), financial information reliability ($r = 0.322$, $p < 0.01$), organizational expenditure reduction ($r = 0.280$, $p < 0.01$), goal achievement ($r = 0.299$, $p < 0.01$), and firm value ($r = 0.316$, $p < 0.01$). Thirdly, the relationship of the technology-based internal audit implementation has a positive correlation to operational risk protection ($r = 0.327$, $p < 0.01$), financial information reliability ($r = 0.262$, $p < 0.01$), organizational expenditure reduction ($r = 0.512$, $p < 0.01$), goal achievement ($r = 0.203$, $p < 0.01$), and firm value ($r = 0.160$, $p > 0.05$). Fourthly, the relationship of the internal audit innovation orientation has a positive correlation to operational risk protection ($r = 0.329$, $p < 0.01$), financial information reliability ($r = 0.272$, $p < 0.01$), organizational expenditure reduction ($r = 0.333$, $p < 0.01$), goal achievement ($r = 0.292$, $p < 0.01$), and

firm value (r = 0.515, p < 0.01). Fifthly, the relationship of the internal audit skepticism competency has a positive correlation to operational risk protection (r = 0.508, p < 0.01), financial information reliability (r = 0.467, p < 0.01), organizational expenditure reduction (r = 0.562, p < 0.01), goal achievement (r = 0.371, p < 0.01), and firm value (r = 0.387, p < 0.01). Finally, the results show that the correlation among the dimensions of internal audit intelligence orientation are between .247 and .585. These correlations do not exceed 0.80 which is advised by Hair et al. (2010). In addition, the maximum VIF value of five dimensions of internal audit intelligence orientation is 2.922, which is not exceeding 10 in the scale (Hair et al., 2010). Therefore, both VIF and correlations certify that multicollinearity problems do not occur.

Table10: The Results of Regression Analysis for the Relationship between Each Dimension of Internal Audit Intelligence Orientation and Its Consequences

Independent Variables	**Dependent Variables**				
	ORP **Eq.1**	**FIR** **Eq.2**	**OER** **Eq.3**	**GOA** **Eq.4**	**FIV** **Eq.6**
Dynamic Internal Audit Planning (DIAP)(H1a-e)	.084 (.071)	**.326**** (.073)	.042 (.068)	**.212*** (.074)	.080 (.071)
Internal Audit Method Integration (IAMI) (H2a-e)	**.203*** (.094)	**.240*** (.096)	.136 (.090)	**.264*** (.098)	**.261*** (.094)
Technology-based Internal Audit Implementation (TIAI) (H3a-e)	**.183*** (.089)	.160 (.090)	**.375**** (.085)	.125 (.092)	.089 (.089)
Internal Audit Innovation Orientation (IAIO) (H4a-e)	**.380**** (.070)	**.276**** (.072)	**.320**** (.067)	**.291**** (.073)	**.500**** (.070)
Internal Audit Skepticism Competency (IASC)(H5a-e)	**.232*** (.114)	.146 (.116)	**.249*** (.109)	.068 (.119)	.099 (.144)
Corporate Governance Award (CGA)	**.344*** (.137)	**.323*** (.140)	.061 (.132)	**.677**** (.143)	**.376*** (.138)
Firm Age (FAS)	-.252 (.141)	-.276 (.144)	-.207 (.135)	-.213 (.147)	-.080 (.141)
Adjusted R^2	.412	.388	.458	.361	.409
Maximum VIF	2.922	2.922	2.922	2.922	2.922

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

Table 10 demonstrated the hypothesis testing results. Firstly, the results indicate that dynamic internal audit planning significantly and positively relates to financial information reliability (β_8 = .326, p < .01), and goal achievement (β_{22} = .212, p < .05). Prior research found that dynamic capabilities improve the effectiveness, speed, and efficiency of organizational responses to environmental turbulence (Chmielewski and Paladino, 2007; Hitt et al., 2001), which ultimately strengthens performance. The planning should be flexible in order to make the change during the year as a result of strategic change management expectations of achieving firm objectives (Ljubisavljevic and Jovanovic, 2011). Dynamic planning supports speed for decision-making, creates visibility to what is ahead, and focuses on the most important drivers of business performance which achieve organizational goals (Batchelor and McCarthy, 2009). The reliability of financial information is a result of the effectiveness of internal audit. Thus, internal audit is the tool to create financial information reliability (Altamuro and Beatty, 2010). Information quality and reliability are critical to business in achieving its goals, especially in financial information. ***Thus, hypotheses 1b, and 1d are supported***.

In contrast, there are no significant effects of dynamic internal audit planning on operational risk protection (β_1 = .084, p > .05), organizational expenditure reduction (β_{15} = .042, p > .05), and firm value (β_{34} =.080, p > .05). According to prior research, Goodwin and Kent (2006) stated that the differences of each country are likely to impact aspects of the internal audit, including the assessment of client risks and subsequent internal audit planning decisions. Similarly, the differences of a country and client type affect audit planning (Martinis et al., 2011). The internal audit department must develop an audit plan that ensures a maximum coverage of the areas to be audited (Hemaida, 1997). Internal audit planning that is incomplete leads to a loss of internal audit activities to bear the risk of an organization (Vasile and Popescu, 2011). In addition, planning skills can help an internal audit provide highly useful input to the enterprise risk management process (Schneider, Sheikh, and Simione, 2012). On the other hand, the lack of knowledge, skill, and experience that is necessary for audit planning of internal auditors may be to ignore some critical activities as a material weakness (Backer, 2010; GeandMcVay, 2005). The operational risk protection is decreased, which does not enhance organizational value (Sori, 2009). Moreover, lower external audit fees are associated with a larger internal audit department and certain

activities carried out by the internal audit (Ho and Hutchinson, 2010). ***Thus, hypotheses 1a, 1c, and 1e are not supported.***

Secondly, the results show that internal audit method integration significantly and positively relates to operational risk protection ($\beta_2 = .203$, $p < .05$), financial information reliability ($\beta_9 = .240$, $p < .05$), goal achievement ($\beta_{23} = .264$, $p < .05$), and firm value ($\beta_{35} = .261$, $p < .05$). These empirical results are consistent with Chang et al. (2008) and Schultz et al. (2010) who found that risk assessment process and audit risk methodology are the key factors that influence audit success and audit judgments as well. Risk management can reduce earnings volatility, maximize value, promote financial security in the organization (Lam, 2003), and help internal audit to improve the systems for managing the operational risk (Laviada, 2007). Importantly, a strong system of internal audit is good for an organization in risk management through early detection and prevention of errors and fraud which help to achieve performance and profitability, and prevents loss of revenues (Vijayakumar and Nagaraja, 2012). Furthermore, the participation of all units can increase capacity to indicate and manage integrative risk whether it is organizational risk and business risk as a whole, and which is fundamental to achieving the internal audit objective (PWC, 2002). The effectiveness of internal audit is due to internal audit method integration, which tool creates financial information reliability (Altamuro and Beatty, 2010).***Thus, hypotheses 2a, 2b, 2d and 2e are supported***.

On the other hand, internal audit method integration has no significant relationship with organizational expenditure reduction ($\beta_{16} = .136$, $p > .05$). A review of the literature suggests that the use of internal audit function assistance should decrease audit fees, but empirical evidence on the extent to which internal audit function organizational status and commitment to budgetary resources influence this association is sparse (Abbott, Parker, and Peters, 2012). Moreover, from a complementary perspective, the presence of internal audit function signals greater commitment by the firm to stronger corporate governance and a willingness to pay more for a higher quality external audit (Hay et al., 2008). Directors and audit committee members may choose to increase investment in both internal and external auditing, in order to protect their reputations (Knechel and Willekens, 2006), or because they see a need to invest in all forms of control (Goodwin and Kent, 2006). In addition,

lower external audit fees are related to a larger internal audit department and certain activities carried out by the internal audit (Ho and Hutchinson, 2010). ***Thus, hypothesis 2c is not supported.***

Thirdly, the results reveal that technology-based internal audit implementation has a significantly positive effect on operational risk protection ($\beta_3 = .183$, $p < .05$), and organizational expenditure reduction ($\beta_{17} = .375$, $p < .01$). Consistently, prior research claimed benefits for auditors and audit firms who use computer-assisted audit tools and techniques that include reducing audit cost, and improving audit quality and productivity (Dowling and Leech, 2007; Zhao et al., 2004). The general argument is that better governance reduces control risk, ensures high-quality auditing and leads to a reduction in audit risk and fees (Tsui et al., 2001; Bedard and Johnstone, 2004). Moreover, Olasanmi (2013) found that computer-aided audit tools can help fraud detection. Importantly, a strong system of internal audit is good for an organization in risk management through early detection and prevention of errors and fraud which help to achieve performance and profitability, and prevents loss of revenues (Vijayakumar and Nagaraja, 2012). An internal audit serves as a mechanism for the detection of fraud and errors (The Ernst and Young Guide, 2006).Especially, high information technology investment (e.g., a test facility, test data, and generalized audit software) can effectively prevent both external fraud, and the system from internal fraud (Shaikh, 2005; Swanger and Chewning, 2001).***Thus, hypotheses 3a, and 3c are supported***.

On the contrary, there are no significant effects of technology-based internal audit implementation on financial information reliability ($\beta_{10} = .160$, $p > .05$), goal achievement ($\beta_{24} = .125$, $p > .05$), and firm value ($\beta_{36} = .089$, $p > .05$). The prior research of Anderson et al., (2012) found that internal audit size (as measured by the number of internal auditors) is positively associated with the use of sophisticated audit technology including audit management, continuous monitoring, data extraction, fraud detection/prevention, and SOX compliance tools. This may be because resource constraints (low budget allocation, staff rejection, and top management that is unsupported) affect the application of modern technology, which leads to less transparent practice of firms (Ismail, 2007). Besides, if audit software does not meet expectation of users it cannot effectively improve internal control systems. That means an advanced internal audit technology application does not cause transparency in

operational processes of firms (Moorthy et al., 2011). ***Thus, hypotheses 3b, 3d, and 3e are not supported.***

Fourthly, the results demonstrate that internal audit innovation orientation has a significantly positive effect on all consequents, including operational risk protection (β_4 = .380, p < .01), financial information reliability (β_{11} = .276, p < .01), organizational expenditure reduction (β_{18} = .320, p < .01), goal achievement (β_{25} = .291, p < .01), and firm value (β_{37} = .500, p < .01). Prior research found that when organizations adjust their new or developed techniques of internal audit mechanism according to internal audit systems, they will be able to ensure the reliability of financial information processing (Teru and Hla, 2015). Auditors improve the quality, reliability and transparency of financial statements by lending credibility to the financial information disclosed by reducing the risk that the information is materially misstated (Madsen, 2013; Rezaee, 2005). Importantly, a strong system of internal audit is the techniques for risk management through early detection and prevention of errors and fraud which help to achieve a goal (Vijayakumar and Nagaraja, 2012). Prior studies use the agency theory to explain the use of internal audit techniques as a monitoring mechanism to reduce agency costs (Adams, 1994). The general argument is that better governance reduces control risk, ensures high-quality auditing, and leads to a reduction in audit risk and fees (Tsui et al., 2001; Bedard and Johnstone, 2004). ***Thus, hypotheses 4a, 4b, 4c, 4d and 4e are supported***.

Finally, the results show internal audit skepticism competency has a significantly positive effect on operational risk protection (β_5= .232, p < .05), and organizational expenditure reduction (β_{19} = .249, p < .05). Consistent with prior research, Coppage and Shasiri (2014) stated that if the auditor effectively applies professional skepticism as an attitude that includes a questioning mind and a critical assessment of audit evidence, it improves audit quality. Extending Nelson's model, high emphasis on skepticism increases auditors' assessments of the likelihood of fraud (Carpenter and Reimers, 2011). High emphasis on skepticism also leads auditors to identify more fraud risk factors, and to select a greater number of relevant audit procedures. Fraud is a costly problem for organizations (Burnaby and Muehlmann, 2011). The role of the internal auditor is detecting, preventing, and monitoring fraud risks, and addressing those risks in audits and investigations (IIA, 2009). The Ernst and

Young Guide (2006) outlines that an internal audit serves as a mechanism for the detection of fraud and errors. Previous studies use agency theory to explain the use of the internal audit as a monitoring mechanism to reduce agency costs (Adams, 1994).***Thus, hypotheses 5a, and 5c are supported***.

However, internal audit skepticism competency has not significance for financial information reliability (β_{12} = .146, p > .05), goal achievement (β_{26} = .068, p > .05), and firm value (β_{38} =.099, p > .05). The prior studies of Fullerton and Durtschi (2005) indicate that the internal audit function may carefully plan and perform with professional doubt; but if the internal audit team does not search for additional knowledge or evidence to identify fraudulent error, and illegal activities, this may lead to internal audit failure. In addition, some Thai-listed firms establish the internal audit function, set an ethical policy, and provide an internal audit resource in order to comply with mandatory requirements (Tengamnuay and Stapleton, 2009). Also some management or audit committees may ignore internal audit recommendations. Furthermore, successful operational improvement depends on the management's compliance with the internal audit recommendation (Lenz and Saren, 2011).
Thus, hypotheses 5b, 5d, and 5e are not supported.

For the control variables, CG award has a positive effect on operational risk protection (β_6 = .344, p < .05), financial information reliability (β_{13} = .323, p < .05), goal achievement (β_{27} = .677, p < .01), and firm value (β_{39} = .376, p < .05). Because corporate success may be influenced by a corporate governance award, it may achieve superior performance (Brown and Caylor, 2009; Bebchuk, Cohen, and Ferrel, 2009). Moreover, the existing literature has found that levels of corporate governance award are contemporaneously correlated with firm performance (Cheung et al., 2011; Gawer, 2009, 2010; Manescu, 2011). In addition, corporate governance award indicates the main factors pursuing corporate success and corporate competitive advantage (Brush and Chaganti, 1999; Bebchuck, Cohen, and Wang, 2010; Gompers, Ishii, and Metrick, 2003). However, a CG award does not affect operational risk protection (β_{20}= 0.061, p > .05) Meanwhile, a CG award does not affect organizational expenditure reduction. In addition, firm age (the period of time in business) does not affect operational risk protection (β_7=- 0.252, p > .05), financial information reliability (β_{14}=- 0.276, p > .05), organizational expenditure reduction (β_{21}=- 0.207, p > .05), goal achievement (β_{28}=- 0.213,

p > .05), and firm value (β_{40}=- 0.080, p > .05). Meanwhile, firm age does not affect internal audit

The Effect of Operational Risk Protection, Financial Information Reliability and Organization Expenditure Reduction on Goal Achievement, and The Effect of Goal Achievement on Firm Value

As shown in Figure 8, the effect of operational risk protection, financial information reliability, and organizational expenditure reduction on goal achievement and the effect of goal achievement on firm value are represented in hypotheses H6 to H9. A positive relationship is posited for each hypothesis. Thus, these hypotheses can be converted to the regression equations in equations 5 and 7.

Figure 8: The Effect of Operational Risk Protection, Financial Information Reliability and Organization Expenditure Reduction on Goal Achievement, and the Effect of Goal Achievement on Firm Value

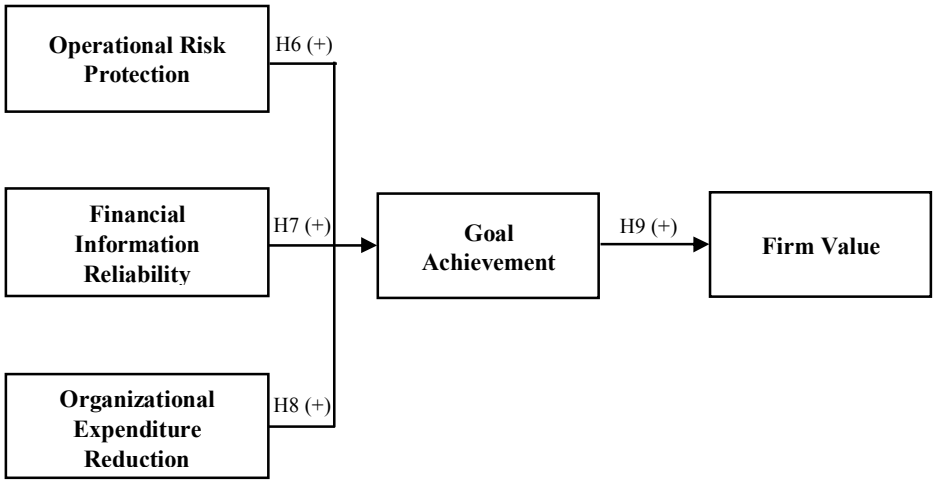


Table 11: Correlation Matrix of Operational Risk Protection, Financial Information Reliability, Organization Expenditure Reduction, Goal Achievement, and Firm Value

Variable	ORP	FIR	OER	GOA	FIV	CGA	FAS
Mean	3.910	4.362	3.677	3.696	4.021	.582	.559
S.D.	.505	.567	.624	.725	.673	.495	.498
ORP	1.000						
FIR	.365**	1.000					
OER	.818**	.355**	1.000				
GOA	.607**	.634**	.579**	1.000			
FIV	.521**	.561**	.473**	.630**	1.000		
CGA	.201*	.217*	.084	.377**	.227**	1.000	
FAS	-.005	-.030	-.035	.012	.111	.102	1.000

** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed)

Table 11 demonstrates the correlation among operational risk protection, financial information reliability, organizational expenditure reduction, goal achievement, and firm value. The results indicate that operational risk protection is positively and significantly correlated to financial information reliability ($r = 0.365$, $p < 0.01$), goal achievement ($r = 0.607$, $p < 0.01$), and firm value ($r = 0.521$, $p < 0.01$). Moreover, financial information reliability has a positive significant correlation to organizational expenditure reduction ($r = 0.355$, $p < 0.01$), goal achievement ($r = 0.634$, $p < 0.01$), and firm value ($r = 0.561$, $p < 0.01$). The results indicate that organizational expenditure reduction is positively and significantly correlated to goal achievement ($r = 0.579$, $p < 0.01$), and firm value ($r = 0.473$, $p < 0.01$), and goal achievement is positively significant correlated to firm value ($r = 0.630$, $p < 0.01$). These results indicate that the correlation do not exceed 0.80 which is recommended by Hair et al. (2010). Correspondently, Table 11 revealed that the maximum value of VIF is 3.243, which is not exceeding 10 in the scale (Hair et al., 2010). Therefore, both VIF and correlations are certified to not have multicollinearity problems.

On the contrary, the results indicate that operational risk protection is positively and significantly correlated to organizational expenditure reduction

($r = 0.818$, $p < 0.01$) but variance inflation factors (VIF) is 3.243, which less than 10, the model do not have serious multicollinearity.

Table 12: The Results of the Regression Analysis for Effects of Operational Risk Protection, Financial Information Reliability and Organization Expenditure Reduction on Goal Achievement, and The Effect of Goal Achievement on Firm Value

Independent Variables	**Dependent Variables**	
	GOA Eq.5	**FIV Eq.7**
Operational Risk Protection (ORP) (H6)	**.213*** (.098)	-
Financial Information Reliability (FIR) (H7)	**.426**** (.060)	-
Organization Expenditure Reduction (OER)(H8)	**.236*** (.097)	-
Goal Achievement (GOA) (H9)	-	**.637**** (.073)
Corporate Governance Award (CGA)	**.441**** (.117)	-.048 (.148)
Firm Age (FAS)	.023 (.110)	.213 (.136)
Adjusted R^2	.603	.394
Maximum VIF	3.243	1.178
Beta coefficients with standard errors in parenthesis, ** $p < 0.01$, * $p < 0.05$		

Table 12 demonstrated the hypothesis testing results. Firstly, the results indicate that operational risk protection significantly and positively relates to goal achievement ($\beta_{29} = .213$, $p < .05$). According to prior research, the main benefits of the operational risk management are the increase of shares value; the operational risk protection; the reputation protection and low levels of operational losses (Kipsang, 2014). Accordingly, Lam (2003) supports the results that risk management can reduce earnings volatility, maximize value, and promote financial security in the organization. Importantly, a strong system of internal audit is good for an organization in risk management through early detection and prevention of errors and fraud which help to achieve performance and profitability, and prevents loss of revenues (Vijayakumar and Nagaraja, 2012). Further, the significance of effective internal audit system and risk

management assures that an organization is in the hands of efficient management with good sense and judgment helping to achieve an organizations objectives successfully (Vijayakumar and Nagaraja, 2012). ***Thus, hypothesis 6is supported***.

Secondly, the results show that financial information reliability significantly and positively relates to goal achievement (β_{30} = .426, p < .01). Because internal audit system with the development of the use of information technology obtains financial statements of high reliability and provides adequate and appropriate evidence to achieve the business goals (Al-Laith, 2012). The reliability of financial information is a result of the effectiveness of the internal audit. Information quality and reliability are critical to a business in achieving its goals, especially in financial information (Altamuro and Beatty, 2010). Consistently, the reliability of financial information is very important in the capital market, which can provide efficiency for the markets, and which enables the market to act as a signaling mechanism for proper capital allocation (Rezaee and Riley, 2009). Moreover, the integrity of financial information leads to information reliability and toward information usefulness. ***Thus, hypothesis 7is supported***.

Thirdly, the results suggest that organizational expenditure reduction significantly and positively relates to goal achievement (β_{31} = .236, p < .01). According to The American Institute of Certified Public Accountants (AICPA), internal auditors are there to ensure that the company achieves its mission, among other objectives, promoting efficiency and reducing the risk of asset losses (Gona, Mutero, and Mazani, 2014). Organizations that approach cost reduction with the right mindset have a better chance of success than those which simply tamper on the periphery (Oates, 2011). ***Thus, hypothesis 8 is supported***.

Finally, similarly the results reveal that goal achievement also has a positive influence on firm value (β_{41} = .637, p < .01). Accordingly, internal auditing functions are the assurance and consulting activities that are designed to add value to the organization (IIA, 2012). Internal audit also can add value by helping organizations achieve economy, efficiency and effectiveness (Al-Twaijry et al., 2003). ***Thus, hypothesis 9 is supported***.

For the control variables, CG award has a positive effect on goal achievement (β_{32} = .441, p < .01). Consistently, Cheung et al. (2011) stated that levels in corporate governance award are contemporaneously correlated with firm performance. In

addition, corporate governance award indicates the main factor that pursues corporate success and corporate competitive advantage (Bebchuck, Cohen, and Wang, 2010). However, CG award does not affect firm value (β_{42}= 0.061, p > .05) In addition, firm age does not affect goal achievement (β_{33}= 0.023, p > .05), and firm value (β_{43}=0.213, p > .05). Meanwhile, firm age does not affect goal achievement and firm value.

The Effects of the Antecedents on Each Dimension of Internal Audit Intelligence Orientation with Governance Culture as a Moderator

As shown in Figure 9, the effect of five antecedents, including corporate sustainability vision, top management support, best accounting system, technology acceptance, and environmental turbulence on the five dimensions of internal audit intelligence orientation (dynamic internal audit planning, internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency), are hypothesized to be positively related as proposed in hypotheses 10(a-e) to14(a-e). A positive relationship is posited in each hypothesis. Thus, these hypotheses can be converted to the regression equation in equation 8, 10, 12, 14, and 16. Furthermore, governance culture is determined as the moderating variable on the relationships between these antecedents and the dimensions of internal audit intelligence orientation. Governance culture is proposed to strengthen the relationships between the five antecedents and five dimensions of internal audit intelligence orientation as analyzed from regression equation 9, 11, 13, 15, and 17. These relationships relied on hypotheses 15(a-e) to 19(a-e).

Figure 9: The Effects of the Antecedents on Each Dimension of Internal Audit Intelligence Orientation with Governance Culture as a Moderator

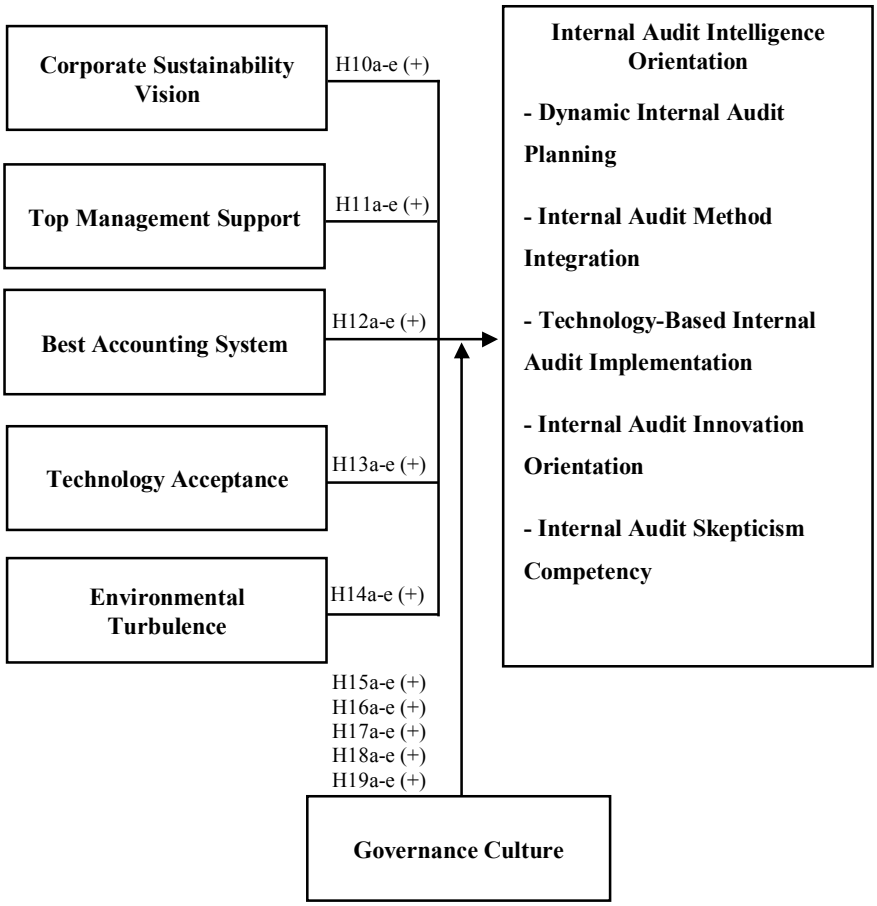


Table 13 presents the correlation among the five antecedents and five dimensions of internal audit intelligence orientation. Firstly, corporate sustainability vision is positively correlated to dynamic internal audit planning ($r = 0.404$, $p < 0.01$), internal audit method integration ($r = 0.471$, $p < 0.01$), technology-based internal audit implementation ($r = 0.384$, $p < 0.01$), internal audit innovation orientation ($r = 0.329$, $p < 0.01$), and internal audit skepticism competency ($r = 0.387$, $p < 0.01$). Secondly, top management support is positively correlated to dynamic internal audit planning ($r = 0.576$, $p < 0.01$), internal audit method integration ($r = 0.441$, $p < 0.01$), technology-based internal audit implementation ($r = 0.547$, $p < 0.01$), internal audit innovation orientation ($r = 0.523$, $p < 0.01$), and internal audit skepticism competency ($r = 0.523$, $p < 0.01$). Thirdly, best accounting system is positively correlated to dynamic internal audit planning ($r = 0.333$, $p < 0.01$), internal audit method integration ($r = 0.289$, $p < 0.01$),

technology-based internal audit implementation ($r = 0.239$, $p < 0.01$), internal audit innovation orientation ($r = 0.243$, $p < 0.01$), and internal audit skepticism competency ($r = 0.378$, $p < 0.01$). Fourthly, technology acceptance is positively correlated to dynamic internal audit planning ($r = 0.333$, $p < 0.01$), internal audit method integration ($r = 0.333$, $p < 0.01$), technology-based internal audit implementation ($r = 0.515$, $p < 0.01$), internal audit innovation orientation ($r = 0.458$, $p < 0.01$), and internal audit skepticism competency ($r = 0.501$, $p < 0.01$). Fifthly, environmental turbulence is positively correlated to dynamic internal audit planning ($r = 0.379$, $p < 0.01$), internal audit method integration ($r = 0.363$, $p < 0.01$), technology-based internal audit implementation ($r = 0.360$, $p < 0.01$), internal audit innovation orientation ($r = 0.471$, $p < 0.01$), and internal audit skepticism competency ($r = 0.463$, $p < 0.01$). Finally, governance culture is positively correlated to dynamic internal audit planning ($r = 0.418$, $p < 0.01$), internal audit method integration ($r = 0.421$, $p < 0.01$), technology-based internal audit implementation ($r = 0.456$, $p < 0.01$), internal audit innovation orientation ($r = 0.382$, $p < 0.01$), and internal audit skepticism competency ($r = 0.419$, $p < 0.01$). These results indicate that the correlation do not exceed 0.80 which is recommended by Hair et al. (2010). Correspondently, table 13 revealed that the maximum value of VIF is 5.498, which is not exceeding 10 in the scale (Hair et al., 2010). Therefore, both VIF and correlations are certified to not have multicollinearity problems.

Table 13: Correlation Matrix of Governance Culture, Five Antecedents of Internal Audit Intelligence Orientation, and Five Dimensions of Internal Audit Intelligence Orientation

Variable	DIAP	IAMI	TIAI	IAIO	IASC	CSV	TMS	BAS	TEA	ENT	GOC	CGA	FAS
Mean	4.327	4.288	4.078	4.207	4.205	4.097	4.170	4.267	4.276	4.271	4.320	.582	.559
S.D.	.512	.557	.705	.636	.608	.571	.626	.628	.540	.532	.632	.495	.498
DIAP	1.000												
IAMI	.281**	1.000											
TIAI	.254**	.234**	1.000										
IAIO	.484**	.209**	.290**	1.000									
IASC	.207*	.585**	.492**	.147	1.000								
CSV	.404**	.471**	.384**	.329**	.387**	1.000							
TMS	.576**	.441**	.547**	.523**	.523**	.471**	1.000						
BAS	.333**	.289**	.239**	.243**	.378**	.392**	.113	1.000					
TEA	.333**	.333**	.515**	.458**	.501**	.035	.450**	.093	1.000				
ENT	.379**	.363**	.360**	.471**	.463**	.315**	.394**	.393**	.646**	1.000			
GOC	.418**	.421**	.456**	.382**	.419**	.636**	.503**	.244**	.176*	.143	1.000		
CGA	.119	-.008	.098	.052	.029	.206**	.097	.092	-.010	.141	.195*	1.000	
FAS	.073	.016	-.106	.246**	.084	-.024	.003	.156	-.042	.009	-.025	.102	1.000

** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed)

Table 14: The Results of the Regression Analysis for the Effects of the Antecedents on Each Dimension of Internal Audit Intelligence Orientation with Governance Culture as a Moderator

Independent Variables	Dependent Variables									
	DIAP Eq.8	**DIAP Eq.9**	**IAMI Eq.10**	**IAMI Eq.11**	**TIAI Eq.12**	**TIAI Eq.13**	**IAIO Eq.14**	**IAIO Eq.15**	**IASC Eq.16**	**IASC Eq.17**
Corporate Sustainability Vision (CSV) (H10a-e)	.053 (.094)	.017 (.129)	**.370**** (.103)	**.329*** (.148)	**.266**** (.091)	**.396**** (.128)	.104 (.097)	-.091 (.133)	.169 (.089)	.178 (.120)
Top Managements Support (TMS) (H11a-e)	**.511**** (.091)	**.466**** (.092)	.165 (.100)	.160 (.105)	**.277**** (.089)	**.306**** (.091)	**.322**** (.094)	**.243*** (.094)	**.297**** (.087)	**.281**** (.085)
Best Accounting System (BAS) (H12a-e)	**.287**** (.080)	**.275**** (.083)	.140 (.088)	.112 (.095)	**.190*** (.078)	**.175*** (.082)	.105 (.083)	.024 (.086)	**.287**** (.077)	**.230**** (.077)
Technology Acceptance (TEA) (H13a-e)	.100 (.102)	.083 (.126)	**.297**** (.112)	**.308*** (.144)	**.560**** (.099)	**.717**** (.125)	**.241*** (.105)	.100 (.130)	**.402**** (.097)	**.429**** (.117)
Environmental Turbulence (ENT) (H14a-e)	-.027 (.102)	.167 (.144)	-.076 (.112)	.079 (.164)	**.289**** (.099)	**.315*** (.142)	.110 (.105)	**.470**** (.148)	-.087 (.097)	.090 (.133)
Governance Culture (GOC)		.050 (.132)		.008 (.151)		-.184 (.131)		**.283*** (.136)		.014 (.122)
CSV x GOC (H15a-e)		**.325**** (.080)		**.184*** (.091)		**.165*** (.079)		**.247**** (.082)		**.293**** (.074)
TMS x GOC (H16a-e)		**-.197**** (.075)		-.083 (.085)		-.102 (.074)		-.112 (.077)		-.131 (.069)
BAS x GOC (H17a-e)		**-.237*** (.093)		-.059 (.107)		.008 (.093)		-.123 (.096)		-.010 (.087)
TEA x GOC (H18a-e)		.036 (.106)		-.011 (.121)		-.105 (.105)		-.021 (.109)		.043 (.098)
ENT x GOC (H19a-e)		-.058 (.082)		-.099 (.094)		-.007 (.082)		-.043 (.085)		-.124 (.077)
CGA	.102 (.136)	.123 (.135)	-.039 (.149)	.021 (.155)	.138 (.133)	.215 (.134)	-.007 (.140)	-.034 (.139)	-.007 (.130)	.075 (.125)
FAS	**.296*** (.134)	**.329**** (.134)	.104 (.148)	.082 (.153)	-.005 (.131)	-.078 (.133)	**.416**** (.139)	**.424**** (.138)	**.284*** (.129)	**.262*** (.124)
Adjusted R^2	.438	.500	.324	.346	.463	.509	.402	.470	.487	.569
Maximum VIF	2.448	5.498	2.448	5.498	2.448	5.498	2.448	5.498	2.448	5.498

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

Table 14 demonstrated the hypothesis testing results. Firstly, the results demonstrate that corporate sustainability vision has a significant and positive effect on internal audit method integration (β_{64} = .370, p < .01), and technology-based internal audit implementation (β_{84} = .266, p < .01). According to prior research, corporate sustainability strategies are therefore challenged to recognize both economic sustainability as well as social and environmental sustainability equally (Parnell, 2008). Internal auditors represent an alternative to other assurance providers because they have the ability to add reliability to reported information and provide this benefit at a lower cost (Abbott, Parker, and Peters 2011). Firms periodically disclose that internal auditors have provided assurance over reported sustainability information and, on occasion, go so far as to provide internal audit assurance letters to accompany the public sustainability reports, simulating the external auditor's assurance role. Internal auditors provide sustainability report assurance (Ridley, D'Silva, and Szombathelyi, 2011; Trotman and Trotman, 2015). The company's corporate sustainability vision is to create sustainable value for the company's key stakeholders through engineering and technology innovation. ***Thus, hypotheses 10b and 10c are supported***.

Conversely, the findings of corporate sustainability vision is not significant for dynamic internal audit planning (β_{44} = .053, p > .05), internal audit innovation orientation *(*β_{104} = .104, p > .05), and internal audit skepticism competency (β_{124} = .169, p > .05). Because the primary goal of sustainability should be operated within optimal capacity. It asks for a dynamic equilibrium between humankind and natural systems (Cairns and Saier, 2010). Strategic planning quality, customers, human resources, finance, and environment are key factors in supporting and promoting the adoption of new methods or techniques used in the enterprise. Maybe, some different executives' opinions on the benefit of sustainability can make money (self interest). On the other hand, some executives may recognize it in as a broader social role (good society). It is possible that the effect of this sustainable vision is difficult to plan for an effective course of action leading to a firm that cannot perceive a real contribution, and seeks for the challenges of problem-solving in a sustainable manner so as to generate continuing development. ***Thus, hypotheses 10a, 10d, and 10e are not supported.***

Secondly, the results suggest that top management support has a significant and positive effect on dynamic internal audit planning (β_{45} = .511, p < .01), technology-

based internal audit implementation (β_{85} = .277, p < .01), internal audit innovation orientation (β_{105} = .322, p < .01), and internal audit skepticism competency (β_{125} = .297, p < .01). It is consistent with top management support that is expressed in terms of supporting the auditing process by fulfilling the necessary resources to execute duties and responsibilities, the internal audit department can hire qualified staff and provide continuous training and development, budgeting funds for certification, and other facilities that facilitate the internal auditing work (Alzeban and Sawan, 2013; Cohen and Sayag, 2010, Hailemariam, 2014). Top management support was strongly and consistently related to the three internal audit dimensions such as auditing quality, auditee evaluations and the added contributions (Cohen and Sayag, 2010). ***Thus, hypotheses 11a, 11c, 11d and 11e are supported***.

Nevertheless, top management support has not significant on internal audit method integration (β_{65} = .165, p > .05). For the possible reason for these findings is that internal auditors regularly need to acquire and develop new skills to enable them meet up with challenges and so the support of management in terms of regular training updates to keep abreast with new developments is undeniable (Pickett, 2000). Effective organizations regularly invest in the training of employees while others see such an effort as costly with no added value (Ubeda-Garciaet al., 2010). Thus, a firm may not invest in staff training because it sees such an effort as costly with non-value added, or a firm may invest in training but not continuing training affecting the audit methods, and skills and knowledge of the internal auditor that is not updated. ***Thus, hypothesis 11bis not supported.***

Thirdly, the results reveal that best accounting system has a significantly positive effect on dynamic internal audit planning (β_{46} = .287, p < .01), technology-based internal audit implementation (β_{86} = .190, p < .05), and internal audit skepticism competency (β_{126} = .287, p < .01). Prior research showed that firms with a higher degree of accounting system implementation effectiveness lead to higher degrees of information value (Al-Dalabeeh and Al-Zeaud, 2012). The use of the computerized accounting systems has led to the decrease of internal control weaknesses, reducing of the inherent risks, reducing of the risk of sampling in the internal control system tests and provided the appropriate methods to assess the estimation of the inherent risks. The use of the computerized accounting systems reduced the risk of auditors' lack of

experience and knowledge, decreased the risk of auditors' lack of independence, reduced the risk of lack of sufficient awareness of the clients' activities and the environment, reduced the risk of improper implementation of the content tests, reduced the wrong judgment risk as a result of the implementation of the content test methods, reduced the sampling risk in the content tests and ultimately reduced the risk of the inappropriate auditing team composition (Marand and Bayaz, 2015). Internal auditors in Turkey believe that accounting information systems contribute positively to their work, therefore accounting information systems has a positive relationship on internal auditing (Tan, 2016). ***Thus, hypotheses 12a, 12c and 12e are supported***.

On the contrary, best accounting system has not significant on internal audit method integration (β_{66} = .140, p > .05) and internal audit innovation orientation (β_{106} = .105, p > .05). The accounting information system that is created in a business is directly related to the organizational culture, level of strategic planning and the information technologies that this specific business has. It is possible to accounting system may not provide information consistent audit method or accounting system may not link audit innovation of internal audit department. ***Thus, hypotheses 12b and 12d are not supported.***

Fourthly, the results demonstrate that technology acceptance has a significantly positive effect on internal audit method integration (β_{67} = .297, p < .01), technology-based internal audit implementation (β_{87} = .560, p < .01), internal audit innovation orientation (β_{107} = .241, p < .05), and internal audit skepticism competency (β_{127} = .402, p < .01). According to prior research**,** technology features have a large impact on technology acceptance in the internal audit profession as influencing system usage, perceived usefulness, and perceived ease of use (Kim et al., 2009). System usage, perceived usefulness, and perceived ease of use are high in basic features and low in advanced features. Technology features will have a large influence on technology acceptance in other professions. ***Thus, hypotheses 13b, 13c, 13d and 13e are supported***.

Surprisingly, the findings are that technology acceptance has not significant on dynamic internal audit planning (β_{47} = .100, p > .05). Consistent different strategies depending on the geographic location should be employed to help create the relevant kinds of pressures on internal auditors to use the technology of audit (Gonzalez,

Sharma, and Galletta, 2012). However, technologies are accepted by internal auditors at a basic level, and they perceived usefulness of it but it. However it is not available in all of internal audit function (Kim, Mannino and Nieschwietz, 2009) and is complex to run (Moorthy et al., 2011). Internal audit function does not rely on technology usage but it focus on understanding, knowledge and task skill. ***Thus, hypothesis 13a is not supported.***

Finally, the results show that environmental turbulence has a significantly positive effect on technology-based internal audit implementation (β_{88} = .289, p < .01) Prior research shows that environmental turbulence (globalization and stakeholder needs) encourages the internal audit to provide timely and accurate assurance of financial and operational information (Brown, Wong, and Baldwin, 2007; Gonzalez, Sharma, and Galletta, 2012). The higher turbulence in the environment, the more proactive, innovative will be a firm and higher will be its proclivity to risk-taking (Wong, 2014). ***Thus, hypotheses 14c, and 14d are supported***.

However, environmental turbulence has not significant on dynamic internal audit planning (β_{48} = -.027, p > .05, β_{55} = .167, p > .05), internal audit method integration (β_{68} = -.076, p > .05, β_{75} = .079, p > .05), internal audit innovation orientation *(*β_{108} = .110, p > .05), and internal audit skepticism competency (β_{128} = -.087, p > .05, β_{135} = .090, p > .05).Some empirical evidence indicates that an audit environment may negatively impact audit practice. According to reducing the litigation environment had a significant impact on audit judgment and audit opinion decision making (Arnold et al., 2001; Geiger and Raghunandan, 2001; Geiger and Rama, 2006). However, this negative result has been investigated in context of an external audit. ***Thus, hypotheses 14a, 14b, and 14e are not supported.***

For the control variables, firm age has a positive effect on dynamic internal audit planning(β_{50} = .296, p < .05, β_{63} = .329, p < .01), internal audit innovation orientation, (β_{110} = .416, p < .01, β_{123} = .424, p < .01), and internal audit skepticism competency (β_{130} = .284, p < .05, β_{143} = .262, p < .01). Because firm age has an impact on internal audit activities (Doyle, Ge and McVay, 2007) the empirical evidence suggests that there is a clear relationship between firm age and growth (Capelleras and Rabetino, 2008). However, firm age does not affect internal audit method integration (β_{70} = 0.104, p > .05) and technology-based internal audit implementation (β_{90} = - 0.005,

p > .05). Meanwhile, firm age does not affect internal audit intelligence orientation. In addition, CG award does not affect dynamic internal audit planning (β_{49} = 0.102, p > .05), internal audit method integration (β_{69} = - 0.039, p > .05), technology-based internal audit implementation (β_{89} = 0.138, p > .05), internal audit innovation orientation (β_{109} = - 0.007, p > .05), and internal audit skepticism competency (β_{129} = - 0.007, p > .05). Meanwhile, corporate governance award does not affect internal audit intelligence orientation.

The Moderating Role of Governance Culture

As shown in Table 14, the moderating effect of governance culture on the relationships among antecedents and each dimension of internal audit intelligence orientation are elaborated as follows. Firstly, governance culture has positively and significantly, moderating effects on the relationships between corporate sustainability vision and all dimensions of internal audit intelligence orientation which are dynamic internal audit planning (β_{57} = .325, p < .01), internal audit method integration (β_{77} = .184, p < .05), technology-based internal audit implementation (β_{97} = .165, p < .05), internal audit innovation orientation (β_{117} = .247, p < .01), and internal audit skepticism competency (β_{137} = .293, p < .01). Accordingly, the principles of corporate governance are a guideline to management in order for the firm to grow and survive (Hopwood, Unerman and Fries, 2010). The focal points of governance culture consist of long term sustainability which ranges from value creation for all stakeholders to society increasingly developed through business governance control mechanisms (IFAC, 2010). Also, investor needs and wants protect against the uncertainty of fraud and risk, and therefore, the strong corporate governance is indispensable to serve their desires. As businesses seek sustainable growth in global business they need to have accurate and timely intelligence about opportunities and threats in the international business environment as intelligence is the key input variable in all strategic decision making. Therefore, businesses have used various types of strategic intelligence systems to gather and process this intelligence (Johannesson and Palona, 2010). Dynamic capabilities should be applied to the process by which firms undertake sustainable development strategies (e.g., Aragon-Correa and Sharma, 2003; Hart and Dowell, 2010). ***Thus, hypotheses 15a, 15b, 15c, 15d, and 15e are supported***.

Secondly, the moderating effect of governance culture between top management support and each dimension of internal audit intelligence orientation has not positive significance on internal audit method integration (β_{78} = -.083, p > .05), technology-based internal audit implementation (β_{98} = -.102, p > .05), internal audit innovation orientation (β_{118} = -.112, p > .05), and internal audit skepticism competency (β_{138} = -.131, p > .05).However the moderating effect of governance culture between top management support and dynamic internal audit planning has negative significance (β_{58} = -.197, p < .01). Although top management support plays an important role to each dimension of internal audit intelligence orientation, there is no effect when there is interaction with governance culture. Thirdly, the finding provides for the moderating effect of governance culture between best accounting system and each dimension of internal audit intelligence orientation has not positive significance on internal audit method integration (β_{79} = -.059, p > .05), technology-based internal audit implementation (β_{99} = .008, p > .05), internal audit innovation orientation (β_{119} = -.123, p > .05), and internal audit skepticism competency (β_{139} = -.010, p > .05).However the moderating effect of governance culture between best accounting system and dynamic internal audit planning has negative significance (β_{59} = -.237, p < .05). Although best accounting system plays an important role in each dimension of internal audit intelligence orientation, there is no effect when there is interaction with governance culture. Fourthly, the interaction between governance culture and technology acceptance has not positively and significantly related to all dimensions of internal audit intelligence orientation which are dynamic internal audit planning (β_{60} = .036, p > .05), internal audit method integration (β_{80} = -.011, p > .05), technology-based internal audit implementation (β_{100} = -.105, p > .05), internal audit innovation orientation (β_{120} = -.021, p > .05), and internal audit skepticism competency (β_{140} = .043, p > .05). Fifthly, the moderating effect of governance culture between environmental turbulence and each dimension of internal audit intelligence orientation has not positive significance on dynamic internal audit planning (β_{61} = -.058, p > .05), internal audit method integration (β_{81} = -.099, p > .05), technology-based internal audit implementation (β_{101} = -.007, p > .05), internal audit innovation orientation (β_{121} = -.043, p > .05), and internal audit skepticism competency (β_{141} = -.124, p > .05). For the possible reasons for these findings, corporate

governance represents a lot of different things depending on the organization in which it is applied. The definitions are sometimes different but, however, they need to be interpreted in their proper context (Florea, and Florea, 2013). Jamie (2006) found that firm require strong and effective corporate governance, firms must have strong and well-crafted rules, and must vigorously enforce them. Corporate governance (CG) stems from the culture and mindset of management and cannot be regulated by legislation alone; too many legal provisions and their intricacies would make the real objective worthless (Jamie, 2006). However, prior literature shows that individual companies can choose governance arrangements beyond what is required by law and regulation, and that these corporate rules have a deep impact on valuation (Acharya, and Paolo, 2008). Thus, firms with vigorously enforced corporate governance regulation may not create a flexible plan, new internal audit methods or internal audit techniques. Moreover, corporate governance and internal audit is not always directly positive because when the quality of corporate governance in a company is particularly low, the company will have to set up stronger internal audit systems rather than formal governance. The substitution effect arising in these findings has also been highlighted in other different corporate governance and agency theory research (Williamson 1983).

Thus, hypotheses 16a-e, 17a-e, 18a-e, and 19a-e are not supported.

Summary

In brief, the main content in this chapter has presented a multiple regression analysis result by a total of nineteen hypotheses. The findings indicated that dynamic internal audit planning has a positive significant effect on financial information reliability and goal achievement. In the same vein, internal audit method integration has a positive significant effect on operational risk protection, financial information reliability, goal achievement and firm value. Furthermore, technology-based internal audit has a positive significant effect on operational risk protection and organizational expenditure reduction. Interestingly, internal audit innovation orientation has a positive significant effect on all its consequents: operational risk protection, financial Information reliability, organizational expenditure reduction, goal achievement, and

firm value. Moreover, internal audit skepticism competency has a positive significant effect on operational risk and organizational expenditure reduction.

In the antecedent factors, corporate sustainability vision has a positive significant effect on internal audit method integration, and technology-based internal audit implementation. Next, top management support has a positive significant effect on dynamic internal audit planning, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. Also, best accounting system has a positive significant effect on dynamic internal audit planning technology-based internal audit implementation, and internal audit skepticism competency. Moreover, technology acceptance has a positive significant effect on internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. In addition, environmental turbulence has a significantly positive effect on technology-based internal audit implementation, and internal audit innovation orientation.

As to the moderating effect of governance culture, it does not play a moderating role between the antecedent and each dimension of internal audit intelligence orientation, except for interaction between corporate sustainability vision and governance culture. It has a strong positive significance for enhancing internal audit intelligence orientation.

In summary, Hypotheses 4, 6, 7, 8, 9, and 15 are significantly supported. In the same vein, Hypotheses 1, 2, 3, 5, 10, 11, 12, 13, and 14 are partially supported. However, Hypotheses 16, 17, 18, and 19 are not supported. Also, the summary of the hypotheses results are provided in Table 17.

Table 15: Summary of Hypothesized Relationships

Hypothesis	Description of Hypothesized Relationships	Results
H1a	Dynamic internal audit planning has a positive influence on operational risk protection.	Not Supported
H1b	Dynamic internal audit planning has a positive influence on financial Information reliability.	Supported
H1c	Dynamic internal audit planning has a positive influence on organizational expenditure reduction.	Not Supported
H1d	Dynamic internal audit planning has a positive influence on goal achievement.	Supported
H1e	Dynamic internal audit planning has a positive influence on firm value.	Not Supported
H2a	Internal audit method integration has a positive influence on operational risk protection.	Supported
H2b	Internal audit method integration has a positive influence on financial Information reliability.	Supported
H2c	Internal audit method integration has a positive influence on organizational expenditure reduction.	Not Supported
H2d	Internal audit method integration has a positive influence on goal achievement.	Supported
H2e	Internal audit method integration has a positive influence on firm value.	Supported
H3a	Technology-based internal audit implementation has a positive influence on operational risk protection.	Supported
H3b	Technology-based internal audit implementation has a positive influence on financial Information reliability.	Not Supported
H3c	Technology-based internal audit implementation has a positive influence on organizational expenditure reduction.	Supported

Table 15: Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships	Results
H3d	Technology-based internal audit implementation has a positive influence on goal achievement.	Not Supported
H3e	Technology-based internal audit implementation has a positive influence on firm value.	Not Supported
H4a	Internal audit innovation orientation has a positive influence on operational risk protection.	Supported
H4b	Internal audit innovation orientation has a positive influence on financial Information reliability.	Supported
H4c	Internal audit innovation orientation has a positive influence on organizational expenditure reduction.	Supported
H4d	Internal audit innovation orientation has a positive influence on goal achievement.	Supported
H4e	Internal audit innovation orientation has a positive influence on firm value.	Supported
H5a	Internal audit skepticism competency has a positive influence on operational risk protection.	Supported
H5b	Internal audit skepticism competency has a positive influence on financial Information reliability.	Not Supported
H5c	Internal audit skepticism competency has a positive influence on organizational expenditure reduction.	Supported
H5d	Internal audit skepticism competency has a positive influence on goal achievement.	Not Supported
H5e	Internal audit skepticism competency has a positive influence on firm value.	Not Supported
H6	Operational risk protection has a positive influence on goal achievement.	Supported
H7	Financial Information reliability has a positive influence on goal achievement.	Supported

Table 15: Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships	Results
H8	Organizational expenditure reduction has a positive influence on goal achievement.	Supported
H9	Goal achievement has a positive influence on firm value.	Supported
H10a	Corporate sustainability vision has a positive influence on dynamic internal audit planning.	Not Supported
H10b	Corporate sustainability vision has a positive influence on internal audit method integration.	Supported
H10c	Corporate sustainability vision has a positive influence on technology-based internal audit implementation.	Supported
H10d	Corporate sustainability vision has a positive influence on internal audit innovation orientation.	Not Supported
H10e	Corporate sustainability vision has a positive influence on internal audit skepticism competency.	Not Supported
H11a	Top management support has a positive influence on dynamic internal audit planning.	Supported
H11b	Top management support has a positive influence on internal audit method integration.	Not Supported
H11c	Top management support has a positive influence on technology-based internal audit implementation.	Supported
H11d	Top management support has a positive influence on internal audit innovation orientation.	Supported
H11e	Top management support has a positive influence on internal audit skepticism competency.	Supported
H12a	Best accounting system has a positive influence on dynamic internal audit planning.	Supported
H12b	Best accounting system has a positive influence on internal audit method integration.	Not Supported

Table 15: Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships	Results
H12c	Best accounting system has a positive influence on technology-based internal audit implementation.	Supported
H12d	Best accounting system has a positive influence on internal audit innovation orientation.	Not Supported
H12e	Best accounting system has a positive influence on internal audit skepticism competency.	Supported
H13a	Technology acceptance has a positive influence on dynamic internal audit planning.	Not Supported
H13b	Technology acceptance has a positive influence on internal audit method integration.	Supported
H13c	Technology acceptance has a positive influence on technology-based internal audit implementation.	Supported
H13d	Technology acceptance has a positive influence on internal audit innovation orientation.	Supported
H13e	Technology acceptance has a positive influence on internal audit skepticism competency.	Supported
H14a	Environmental turbulence has a positive influence on dynamic internal audit planning.	Not Supported
H14b	Environmental turbulence has a positive influence on internal audit method integration.	Not Supported
H14c	Environmental turbulence has a positive influence on technology-based internal audit implementation.	Supported
H14d	Environmental turbulence has a positive influence on internal audit innovation orientation.	Supported
H14e	Environmental turbulence has a positive influence on internal audit skepticism competency.	Not Supported

Table 15: Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships	Results
H15a	Governance culture will positively moderate corporate sustainability vision – dynamic internal audit planning relationships.	Supported
H15b	Governance culture will positively moderate the corporate sustainability vision – internal audit method integration relationships.	Supported
H15c	Governance culture will positively moderate corporate sustainability vision – technology-based internal audit implementation relationships.	Supported
H15d	Governance culture will positively moderate corporate sustainability vision – internal audit innovation orientation relationships.	Supported
H15e	Governance culture will positively moderate corporate sustainability vision – internal audit skepticism competency relationships.	Supported
H16a	Governance culture will positively moderate top management support – dynamic internal audit planning relationships.	Not Supported
H16b	Governance culture will positively moderate top management support – internal audit method integration relationships.	Not Supported
H16c	Governance culture will positively moderate managements support – technology-based internal audit implementation relationships.	Not Supported
H16d	Governance culture will positively moderate managements support – internal audit innovation orientation relationships.	Not Supported
H16e	Governance culture will positively moderate managements support – internal audit skepticism competency relationships.	Not Supported
H17a	Governance culture will positively moderate best accounting system – dynamic internal audit planning relationships.	Not Supported

Table 15: Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships	Results
H17b	Governance culture will positively moderate best accounting system – internal audit method integration relationships.	Not Supported
H17c	Governance culture will positively moderate best accounting system – technology-based internal audit implementation relationships.	Not Supported
H17d	Governance culture will positively moderate best accounting system – internal audit innovation orientation relationships.	Not Supported
H17e	Governance culture will positively moderate best accounting system – internal audit skepticism competency relationships.	Not Supported
H18a	Governance culture will positively moderate technology acceptance – dynamic internal audit planning relationships.	Not Supported
H18b	Governance culture will positively moderate technology acceptance – internal audit method integration relationships.	Not Supported
H18c	Governance culture will positively moderate technology acceptance – technology-based internal audit implementation relationships.	Not Supported
H18d	Governance culture will positively moderate technology acceptance – internal audit innovation orientation relationships.	Not Supported
H18e	Governance culture will positively moderate technology acceptance – internal audit skepticism competency relationships.	Not Supported
H19a	Governance culture will positively moderate environmental turbulence – dynamic internal audit planning relationships.	Not Supported
H19b	Governance culture will positively moderate environmental turbulence – internal audit method integration relationships.	Not Supported

Table 15: Summary of Hypothesized Relationships (continued)

Hypothesis	Description of Hypothesized Relationships	Results
H19c	Governance culture will positively moderate environmental turbulence – technology-based internal audit implementation relationships.	Not Supported
H19d	Governance culture will positively moderate environmental turbulence – internal audit innovation orientation relationships.	Not Supported
H19e	Governance culture will positively moderate environmental turbulence – internal audit skepticism competency relationships.	Not Supported

CHAPTER V

CONCLUSION

The previous chapter reveals the results and discussions that involve respondent characteristics and descriptive statistics, correlation analysis, and hypotheses testing and results. Therefore, this chapter aims to describe the overview of all findings, comprising the summary of the findings and hypothesis testing, theoretical and managerial contributions, and then concludes with a discussion of the research and directions for future research.

Summary of Results

This research investigates the relationships among each dimension of internal audit intelligence orientation, operational risk protection, financial information reliability, organizational expenditure reduction, goal achievement, and firm value in the context of listed firms in Thailand. The newly proposed dimensions of internal audit intelligence orientation are comprised of dynamic internal audit planning, internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. In addition corporate sustainability vision, top management support, best accounting system, technology acceptance, and environmental turbulence are designed as the antecedents of internal audit intelligence orientation. Moreover, the governance culture construct has been considered as a moderating effect between antecedents and each dimension of internal audit intelligence orientation. In terms of corporate governance award and firm age, they are proposed to be control variables that are included in each equation of regression analysis.

The key research question of this research is “How does internal audit intelligence orientation influence firm value?” In detail, there are five specific research questions as follows:1) How does each of five dimensions of internal audit intelligence orientation (dynamic internal audit planning, internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation,

and internal audit skepticism competency) relate to operational risk protection, financial information reliability, organizational expenditure reduction, goal achievement, and firm value?2) How do operational risk protection, financial information reliability, and organizational expenditure reduction have an influence on goal achievement? 3) How does goal achievement relate to firm value? 4) How do corporate sustainability vision, management support, best accounting system, technology acceptance, and environmental turbulence have an impact on each of five dimensions of internal audit intelligence orientation? and 5) How does governance culture moderate the influence of corporate sustainability vision, top management support, best accounting system, technology acceptance, and environmental turbulence on each of five dimensions of internal audit intelligence orientation?

In this research, two theories were integrated in explaining the relationship and phenomena that are found in the research; namely, resource-advantage theory and contingency theory. For the investigation, the Thai-listed firms in the Stock Exchange of Thailand are selected as the population due to Thailand's mandate from its stock exchange/governments that require listed companies to have an Internal Audit function, whether in-house or outsourced. The population sample of this research is provided by the Stock Exchange of Thailand (SET), accessed in March 2016. For the data collection, the self-administrated questionnaire was employed to gather the data. Thus, 594 questionnaires were sent to internal audit directors or internal audit managers, the key informants of Thai-listed firms. The mail survey resulted in 136 returned mailings with 134 being usable; 22.60% response rate. Besides, the research instrument was developed from previous research and literature reviews. To evaluate, all measures of the scale are considered appropriate for further analysis and are accepted for validity and reliability via a pre-test. Statistics used in this research were applied to multiple regression analysis for hypothesis testing.

According to the first research question, the results found that dynamic internal audit planning has a positive influence on financial information reliability and goal achievement. Internal audit method integration has a positive influence on operational risk protection, financial information reliability, goal achievement and firm value. Furthermore, technology-based internal audit has a positive influence on operational risk protection and organizational expenditure reduction. Interestingly, internal audit

innovation orientation has a positive influence on all its consequents: operational risk protection, financial information reliability, organizational expenditure reduction, goal achievement, and firm value. Moreover, internal audit skepticism competency has a positive influence on operational risk and organizational expenditure reduction.

In the second research question, the results found that operational risk protection, financial information reliability, and organizational expenditure reduction have a positive influence on goal achievement.

The findings in the third research question showed that goal achievement has a positive influence on firm value.

The findings according to the fourth research question found that corporate sustainability vision has a positive effect on internal audit method integration, and technology-based internal audit implementation. Next, top management support has a positive effect on dynamic internal audit planning, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. Also, best accounting system has a positive effect on dynamic internal audit planning, technology-based internal audit implementation, and internal audit skepticism competency. Moreover, technology acceptance has a positive effect on internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. In addition, environmental turbulence has a significantly positive effect on technology-based internal audit implementation, and internal audit innovation orientation.

The discovery in the fifth research question found that governance culture plays a moderating role with positive significance in only the interaction with corporate sustainability vision in all dimensions of internal audit intelligence orientation. In summary, the results are concluded and provided in Table 16.

Table 16: Summary of Results is All Research Questions

Research Question	Hypothesis	Results	Conclusion
1) How does each of five dimensions of internal audit intelligence orientation (dynamic internal audit planning, internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency) relate to operational risk protection, financial Information reliability, organizational expenditure reduction, goal achievement, and firm value?	H1a-e	• Dynamic internal audit planning has a positive influence on financial Information reliability and goal achievement.	Partially supported
	H2a-e	• Internal audit method integration has a positive influence on operational risk protection, financial Information reliability, goal achievement and firm value.	Partially supported
	H3a-e	• Technology-based internal audit has a positive influence on operational risk protection and organizational expenditure reduction.	Partially supported
	H4a-e	• Internal audit innovation orientation has a positive influence on all its consequents: operational risk protection, financial Information reliability, organizational expenditure reduction, goal achievement, and firm value.	Fully supported
	H5a-e	• Internal audit skepticism competency has a positive influence on operational risk and organizational expenditure reduction.	Partially supported
2) How do operational risk protection, financial information reliability, and organizational expenditure reduction have an influence on goal achievement?	H6 H7 H8	• Operational risk protection, financial information reliability, and organizational expenditure reduction have a positive influence on goal achievement.	Fully supported
3) How does goal achievement relate to firm value?	H9	• Goal achievement has a positive influence on firm value.	Fully supported

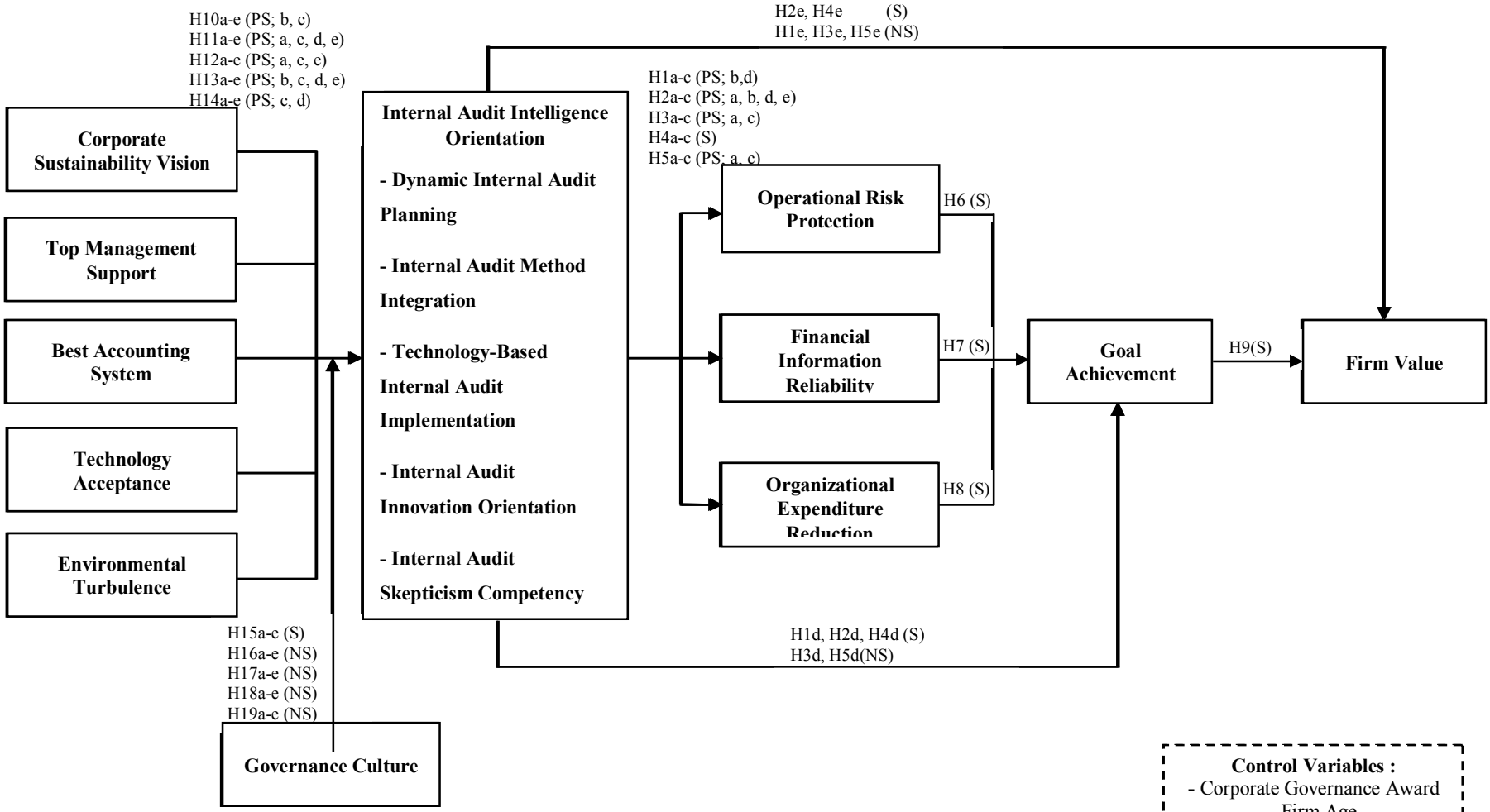
Table 16: Summary of Results is All Research Questions (continue)

Research Question	Hypothesis	Results	Conclusion
4) How do corporate sustainability vision, management support, best accounting system, technology acceptance, environmental turbulence have an impact on each of five dimensions of internal audit intelligence orientation?	H10a-e H11a-e H12a-e H13a-e H14a-e	• Corporate sustainability vision has a positive effect on internal audit method integration, and technology-based internal audit implementation. • Top management support has a positive effect on dynamic internal audit planning, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. • Best accounting system has a positive effect on dynamic internal audit planning technology-based internal audit implementation, and internal audit skepticism competency. • Technology acceptance has a positive effect on internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. • Environmental turbulence has a significantly positive effect on technology-based internal audit implementation, and internal audit innovation orientation.	Partially supported

Table 16: Summary of Results is All Research Questions (continue)

Research Question	Hypothesis	Results	Conclusion
5) How does governance culture moderate the influence of corporate sustainability vision, top management support, best accounting system, technology acceptance, and environmental turbulence on each of five dimensions of internal audit intelligence orientation?	H15a-e H16a-e H17a-e H18a-e H19a-e	• Governance culture plays a moderating role with positive significance in only the interaction with corporate sustainability vision in all dimensions of internal audit intelligence orientation.	Partially supported

Figure 10: Summary of Result in the Relationships of the Conceptual Model



Note: S = Hypothesis is supported
PS = Hypothesis is partially supported (identify in parentheses)
NS = Hypothesis is not supported

Theoretical and Managerial Contributions

Theoretical Contribution

The relationships among dimensions of internal audit intelligence orientation, the antecedent construct, the moderating effect, and its consequents, are the purposes of this research. The discovery provides theoretical contributions as follows.

Firstly, the R-A theory was developed for understanding of how organizations plan to achieve a sustainable competitive advantage. It emphasizes the companies' resources as the fundamental determinants of competitive advantage and performance. This research exposed the R-A theory-based process perspective as underlying the transformation of tangible and intangible resource into internal audit department which creates an advantage for internal audit outcome. Tangible and intangible resource to create internal audit intelligence orientation consist of dynamic planning, audit method integration, technology, innovation of internal audit department and knowledge, skill and skepticism of internal auditors. This demonstrates not only the theoretical importance of internal audit intelligence orientation, but also the specific effect of each dimension of internal audit intelligence orientation on operational risk protection, financial information reliability, organizational expenditure reduction, goal achievement, and firm value, as suggested by R-A theory.

Results were supportive of this perspective, each dimension of internal audit intelligence orientation positively impacted internal audit outcome. Theoretically, this result suggests that internal audit innovation which intangible resource can be creates an advantage for organizational outcome. Internal audit innovation is ability of firm to practical application new method or technique about risk assessment, internal control and consulting to management for increase the efficiency and effectiveness of internal audit activity and participative of internal audit team.

Secondly, contribution lies in the application of a contingency perspective to the relationship between internal and external factor and internal audit intelligence orientation, which this research suggested to be moderated by governance culture. In this research internal factors consist of corporate sustainability vision, management support, best accounting system, and governance culture. External factors consist of technology acceptance and environmental turbulence. This research findings indicate

that the influence of corporate sustainability vision, top management support, best accounting system, technology acceptance, and environmental turbulence on internal audit intelligence orientation. Specifically, it can be stated that top management support and technology acceptance do matter more in internal audit intelligence orientation than the other contingency characteristics examined. Moreover, governance culture is beneficial for the translation of corporate sustainability vision into internal audit intelligence orientation, but does not seem to affect the impact of top management support, best accounting system, technology acceptance, and environmental turbulence. This may be possible when the corporate governance quality in a firm is particularly low, firm will have to set up stronger internal audit systems rather than formal governance.

Thirdly, the scale in each dimension of internal audit intelligence orientation, antecedents, and its consequence are both new scales and are adapted from the prior literature review. With regard to measurement, these scales have been verified and have achieved a high level of validity and reliability. Therefore, these item scale would apply in various studies.

Managerial Contributions

This research provides useful contributions and implications to executives and Internal audit managers regarding available internal audit intelligence in organizations.

This research is a guideline to the development of the internal audit department and the internal audit task. The knowledge and literature of internal audit intelligence orientation research can help corporate management and internal auditors put more emphasis on the internal audit intelligence orientation that can change, develop, and transform the current internal audit processes to include new ideas. This is done by dynamic internal audit planning, integrate of audit method, technology for assisted audits, innovation for internal audit, and skepticism of internal auditors. Based on the equation 1, 2, 3, 4 and 6, the result has indicated that internal audit innovation orientation is powerful promotes all internal audit outcomes: operational risk protection, financial information reliability, organizational expenditure reduction, goal achievement, and firm value. Therefore executives and internal audit managers should focus on creating of new internal audit methods or internal audit techniques, include

improving, developing, strategies and techniques for internal auditing, and building a quality internal audit team to make the internal audit work achieve its goals well. The executives of the internal audit should be aware of internal audit innovation that is able to support the internal audit task.

For the impact of internal audit method integration, dynamic internal audit planning, technology-based internal audit implementation, and internal audit skepticism competency on internal audit outcomes by descending order. Firstly, internal audit method integration is the key factors that influence internal audit success which can reduce earnings volatility, maximize value, promote financial security in the organization, and help internal audit to improve the systems for managing the operational risk. Therefore executives and internal audit managers should focus on combining a variety of audit methods to check information within a comprehensive and complete, and increasing the quality of the internal audit. Firm gives priority on integrating skills, knowledge and audit method together that make increase the potential for internal audits. Secondly, dynamic internal audit planning is the tool to create financial information reliability which achieve organizational goals. Therefore executives and internal audit managers should focus on defining the guidelines for internal audit implementation that it has flexible that make the internal audit work properly and in accordance with the situation. Firm emphasizes on reviewing and improves of internal audit planning can help reliable internal audit operations. Finally, technology-based internal audit implementation and internal audit skepticism competency can help fraud detection and reduce organizational expenditure. Therefore executives and internal audit managers should supports the use of computers for internal audits that increase the data access and diversification of information, completely and data update. Firm encourages the internal audit staff's to technological train, knowledge and capability development that increase the operate efficiency and effectiveness. Firm gives priority on assessment of uncertainty situations, identifying and monitoring of threats and opportunity that may have the negative effects on an organization's operation can helps internal audit to achieve goal. Firm emphasizes on have an internal audit team meeting continuously at every stage of the operation to ensure that the audit covers all activities of the entity and to enhance the effectiveness of internal audits.

In addition, the organization have internal audit department success by create internal audit intelligence orientation. Firms have top management support the necessary resources, budget, and other facilities make the operation more efficient. Executives encourage staff to learn and train new techniques and new procedures, emphasizes on the development of management system, and focus on applying new techniques and new methods in operation always. Include, organization's beliefs, attitudes and intentions towards the technology, which consist of system usage, behavioral intention to use, attitude toward usage, perceived usefulness, perceive ease of use. Moreover corporate sustainability vision appended to governance culture by helping firms to have more internal audit intelligence.

Limitations

The sample size of this research has samples of which the response rate of this research was based on a survey research accepted at 22.60%, but it has only 134 respondents, which is considered to be small. As a result, it may affect the analysis of the power of the statistical test so that the results of the hypotheses are also impacted.

Future Research Directions

Firstly, the results of this research show that some of the research hypotheses are not statistically significant. For example, dynamic internal audit planning has no significant effect on operational risk protection, organizational expenditure reduction and firm value. Moreover, technology-based internal implementation and internal audit skepticism competency has no significant effect on financial information reliability, goal achievement, and firm value. Thus, future research should employ other methods, including the consider of using inductive research or in-depth interviews with internal auditor directors/managers in each firm, in order to create and confirm true construct measurements and all relationships of this model. Also, future research may be re-investigate the research hypotheses that are not statistically significant.

In addition, the moderating effect of governance culture does not support moderation except for corporate sustainability vision. Therefore, the accounting

researcher should be ascertaining other constructs which may have a strong moderating effect such as organizational learning, or internal audit experience. Future research may also consider either a different population, or compare the result with other samples.

Secondly, this research used questionnaires to collect the data and explore through a cross-sectional survey. Therefore, further research may develop longitudinal data and/or mixed methods designed to observe internal audit intelligence orientation in new dimensions that have an effect on firm value.

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APPENDICES

APPENDIX A

Key Respondent Characteristics

Table 1A: Key Respondent Characteristics

Descriptions	Categories	Frequencies	Percent
1.Gender	Male	61	45.52
	Female	73	54.48
	Total	**134**	**100.00**
2. Age	Less than 30 years old	3	2.24
	30-40 years old	42	31.3
	41-50 years old	39	29.1
	More than 50 years old	50	37.3
	Total	**134**	**100.00**
3. Marital status	Single	53	39.55
	Married	79	58.86
	Divorced	2	1.49
	Total	**134**	**100.00**
3. Education levels	Bachelor's degree	46	34.33
	Higher than bachelor's degree	88	65.67
	Total	**134**	**100.00**
4. Working experience	Less than 5 years	19	14.18
	5-10 years	23	17.16
	11-15 years	28	20.90
	More than 15 years	64	47.76
	Total	**134**	**100.00**
6. Average revenue per month	Less than 100,000 Baht	73	54.48
	100,000-125,000 Baht	21	15.67
	125,001-150,000 Baht	10	7.46
	More than 150,000 Baht	30	22.39
	Total	**134**	**100.00**
7. Working positions	Internal audit director	46	34.33
	Internal audit manager	73	54.48
	Others	15	11.19
	Total	**134**	**100.00**

APPENDIX B

Demographic of Firm Characteristics

Table 1B: Demographic Characteristics of Listed Firms in Thailand

Descriptions	Categories	Frequencies	Percent
1.Industrial category	Ago and Food Industry	8	5.97
	Consumer Products	8	5.97
	Financials	11	8.21
	Industrials	21	15.67
	Property and Constructions	26	19.41
	Resources	13	9.70
	Services	21	15.67
	Technology	10	7.46
	Others	16	11.94
	Total	**134**	**100.00**
2. Authorized capital of the firm	Less than 1,000,000,000 Baht	52	38.81
	1,000,000,001-5,000,000,000 Baht	40	29.85
	5,000,000,001-9,000,000,000 Baht	8	5.97
	More than 9,000,000,000 Baht	34	25.37
	Total	**134**	**100.00**
3. Total Asset of the firm	Less than 10,000,000,000 Baht	56	41.79
	10,000,000,001-50,000,000,000 Baht	53	39.55
	50,000,000,001-90,000,000,000 Baht	1	0.75
	More than 90,000,000,000 Baht	24	17.91
	Total	**134**	**100.00**
4. The period of tune registers in the Stock Exchange of Thailand	Less than 5 years	22	16.42
	5-10 years	14	10.45
	11-15 years	23	17.16
	More than 15 years	75	55.97
	Total	**134**	**100.00**
5. CG Scoring	Excellent	31	23.12
	Very Good	47	35.07
	Good	41	30.60
	Satisfactory	7	5.23
	Pass	3	2.24
	Other	5	3.73
	Total	**134**	**100.00**

APPENDIX C

Non-Response Bias Tests

Table 1C: Non-Response Bias Tests

Comparison	N	Mean	Std. Dev.	t-value	p-value
1. Firm capital	134				
• First Group	67	2.15	1.158	-0.422	0.673
• Second Group	67	2.24	1.292		
2. Total Asset	134				
• First Group	67	1.96	1.107	0.080	0.936
• Second Group	67	1.94	1.043		
3. Firm periods Operation in SET	134				
• First Group	67	3.07	1.197	-0.526	0.600
• Second Group	67	3.18	1.100		
4. CG Scoring	134				
• First Group	67	2.24	0.971	-1.542	0.126
• Second Group	67	2.55	1.352		

APPENDIX D

Item Factors Loadings and Reliability Analysis

Table 1D: Item Factor Loading and Reliability Analysis

Constructs	Items	Factor Loading	Item Total Correlation	Cronbach's Alpha
Dynamic Internal Audit Planning	DIAP1	0.719	0.572	0.820
	DIAP2	0.887	0.775	
	DIAP3	0.718	0.545	
	DIAP4	0.830	0.687	
	DIAP5	0.691	0.529	
Internal Audit Method Integration	IAMI1	0.729	0.576	0.862
	IAMI2	0.860	0.763	
	IAMI3	0.851	0.736	
	IAMI4	0.701	0.559	
	IAMI5	0.879	0.793	
Technology-based Internal Audit Implementation	TIAI1	0.759	0.762	0.863
	TIAI2	0.657	0.670	
	TIAI3	0.834	0.823	
	TIAI4	0.624	0.628	
Internal Audit Innovation Orientation	IAIO1	0.927	0.868	0.949
	IAIO2	0.961	0.927	
	IAIO3	0.938	0.888	
	IAIO4	0.902	0.830	
Internal Audit Skepticism Competency	IASC1	0.688	0.541	0.882
	IASC2	0.938	0.840	
	IASC3	0.934	0.841	
	IASC4	0.933	0.838	
Operational Risk Protection	ORP1	0.811	0.697	0.869
	ORP2	0.810	0.707	
	ORP3	0.834	0.722	
	ORP4	0.877	0.795	
	ORP5	0.739	0.581	

Table 1D: Item Factor Loading and Reliability Analysis (continued)

Constructs	Items	Factor Loading	Item Total Correlation	Cronbach's Alpha
Financial Information Reliability	FIR1	0.885	0.791	0.914
	FIR2	0.940	0.876	
	FIR3	0.866	0.768	
	FIR4	0.891	0.808	
Organization Expenditure Reduction	OER1	0.772	0.600	0.846
	OER2	0.862	0.737	
	OER	0.772	0.609	
	OER4	0.902	0.799	
Goal Achievement	GOA1	0.845	0.730	0.907
	GOA2	0.913	0.835	
	GOA3	0.924	0.885	
	GOA4	0.838	0.717	
Firm Value	FIV1	0.824	0.706	0.909
	FIV2	0.916	0.840	
	FIV3	0.874	0.773	
	FIV4	0.934	0.876	
Corporate Sustainability Vision	CSV1	0.796	0.644	0.840
	CSV2	0.879	0.756	
	CSV3	0.842	0.705	
	CSV4	0.797	0.644	
Top Managements Support	TMS1	0.911	0.840	0.933
	TMS2	0.919	0.854	
	TMS3	0.911	0.840	
	TMS4	0.913	0.844	
Best Accounting System	BAS1	0.795	0.654	0.883
	BAS2	0.922	0.847	
	BAS3	0.890	0.791	
	BAS4	0.855	0.720	

Table 1D: Item Factor Loading and Reliability Analysis (continued)

Constructs	Items	Factor Loading	Item Total Correlation	Cronbach's Alpha
Technology Acceptance	TEA1	0.856	0.722	0.875
	TEA2	0.947	0.892	
	TEA3	0.779	0.627	
	TEA4	0.841	0.709	
Environmental Turbulence	ENT1	0.703	0.475	0.730
	ENT2	0.717	0.504	
	ENT3	0.817	0.600	
	ENT4	0.745	0.539	
Governance Culture	GOC1	0.885	0.789	0.938
	GOC2	0.928	0.868	
	GOC3	0.936	0.884	
	GOC4	0.925	0.866	

APPENDIX E

Test of Assumption of Regression Analysis

Testing the assumptions of linear regression

To obtain reliable results of this research, the basis assumption of regression analysis (nonlinearity of regression function, error randomness, heteroscedasticity, and normality of error term) is tested when testing the relationship between dependent and independent variable, based on a regression analysis conducted on sample data (Hair et al., 2010).

There must be quality control for all scientific tests. Each statistical test is based on fundamental assumptions. If the assumptions are violated, the results of the relationship described by the model are invalid. In this research, there was no indication of any violation of the regression assumptions, Equation 17 have demonstrated in details of each assumption are as follows.

Equation 1: ORP $= \alpha_1 + \beta_1 DIAP + \beta_2 IAMI + \beta_3 TIAI + \beta_4 IAIO + \beta_5 IASC + \beta_6 CGA + \beta_7 FAS + \varepsilon_1$

Interdependence of error term

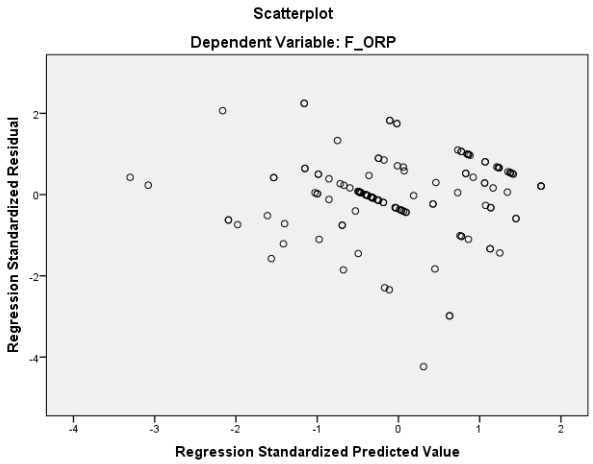
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.665[a]	.443	.412	.76700766	2.141

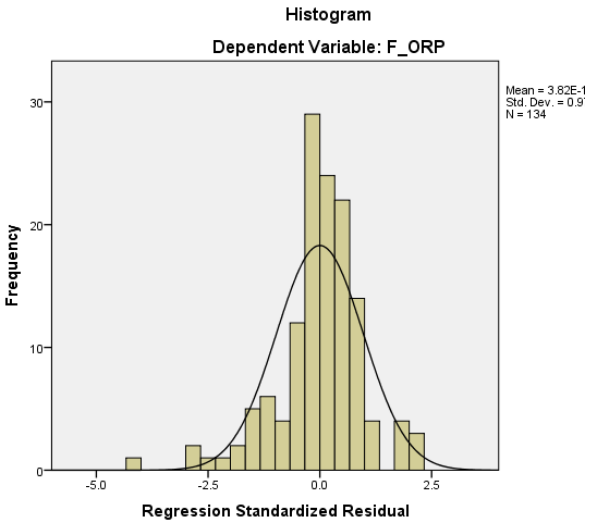
a. Predictors: (Constant), DummyFAS, F_IAMI, F_DIAP, F_TIAI, DummyCGA, F_IAIO, F_IASC

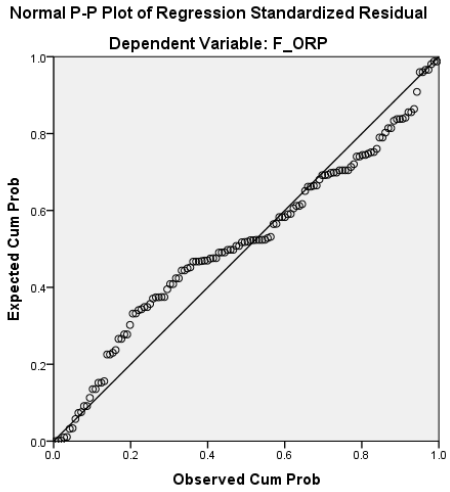
b. Dependent Variable: F_ORP

Heteroscedasticity



Normality of residual





Equation 2: FIR $= \alpha_2 + \beta_8 DIAP + \beta_9 IAMI + \beta_{10} TIAI + \beta_{11} IAIO + \beta_{12} IASC + \beta_{13} CGA + \beta_{14} FAS + \varepsilon_2$

Interdependence of error term

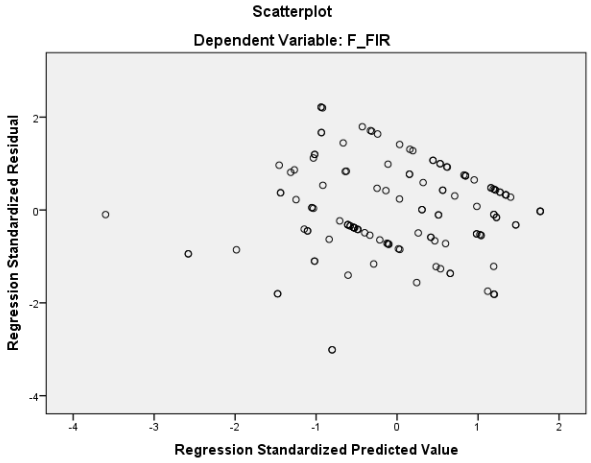
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.648[a]	.420	.388	.78229241	2.200

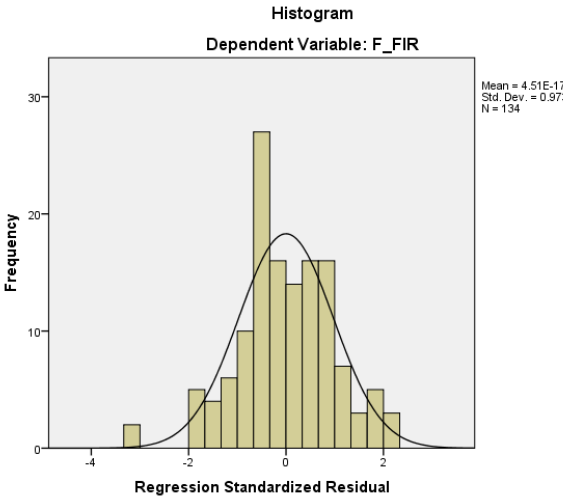
a. Predictors: (Constant), DummyFAS, F_IAMI, F_DIAP, F_TIAI, DummyCGA, F_IAIO, F_IASC

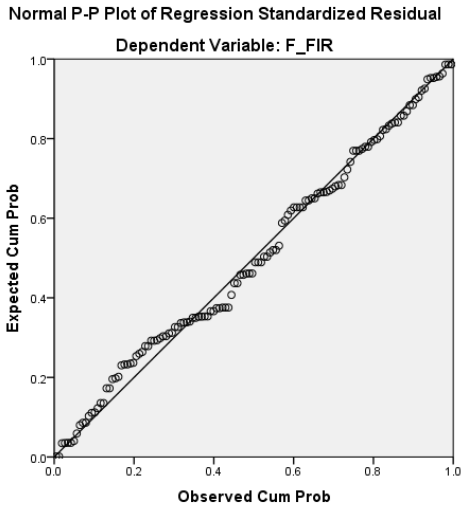
b. Dependent Variable: F_FIR

Heteroscedasticity



Normality of residual





Equation 3: OER $= \alpha_3 + \beta_{15}DIAP + \beta_{16}IAMI + \beta_{17}TIAI + \beta_{18}IAIO + \beta_{19}IASC + \beta_{20}CGA + \beta_{21}FAS + \varepsilon_3$

Interdependence of error term

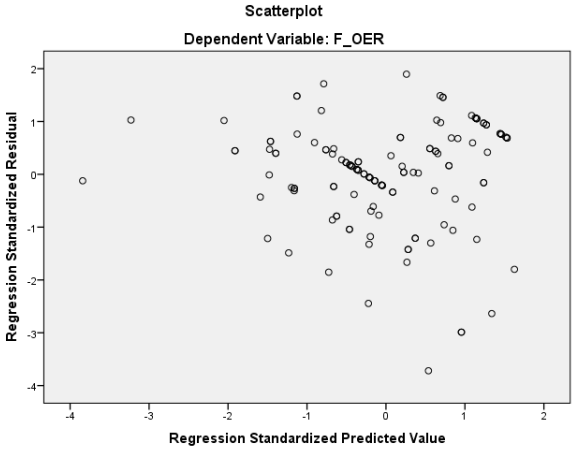
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.698[a]	.487	.458	.73594466	2.076

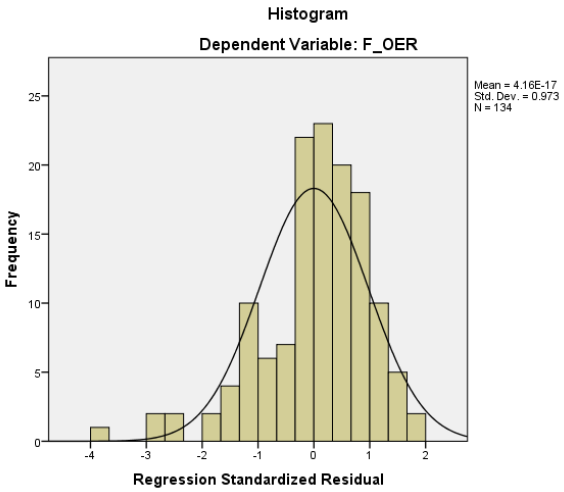
a. Predictors: (Constant), DummyFAS, F_IAMI, F_DIAP, F_TIAI, DummyCGA, F_IAIO, F_IASC

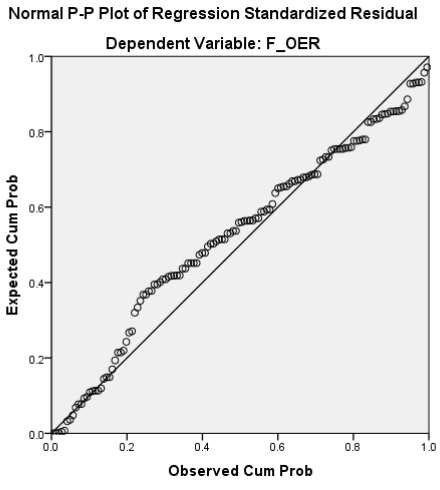
b. Dependent Variable: F_OER

Heteroscedasticity



Normality of residual





Equation 4: GOA $= \alpha_4 + \beta_{22}DIAP + \beta_{23}IAMI + \beta_{24}TIAI + \beta_{25}IAIO + \beta_{26}IASC + \beta_{27}CGA + \beta_{28}FAS + \varepsilon_4$

Interdependence of error term

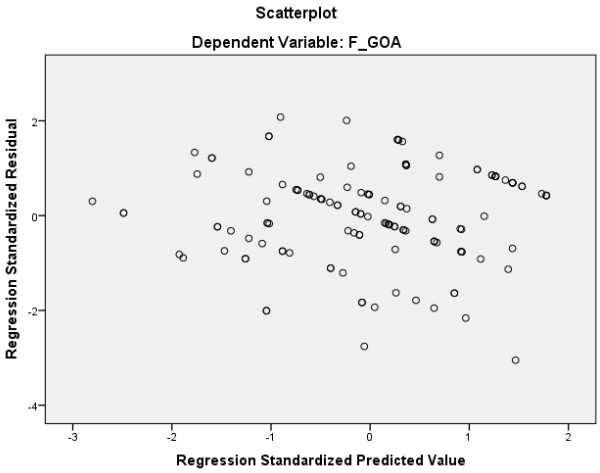
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.628[a]	.394	.361	.79954429	2.023

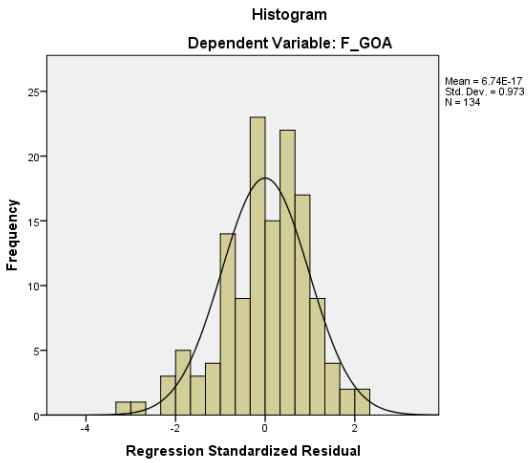
a. Predictors: (Constant), DummyFAS, F_IAMI, F_DIAP, F_TIAI, DummyCGA, F_IAIO, F_IASC

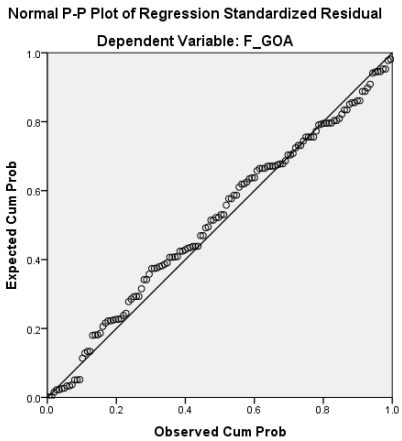
b. Dependent Variable: F_GOA

Heteroscedasticity



Normality of residual





Equation 5: GOA $= \alpha_5 + \beta_{29}ORP + \beta_{30}FIR + \beta_{31}OER + \beta_{32}CGA + \beta_{33}FAS + \varepsilon_5$

Interdependence of error term

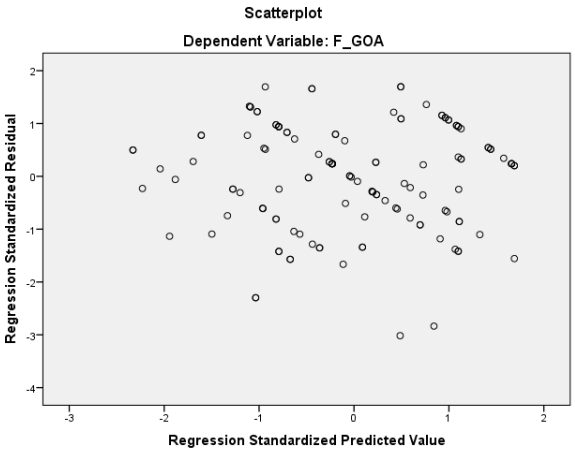
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.786[a]	.618	.603	.62977617	1.931

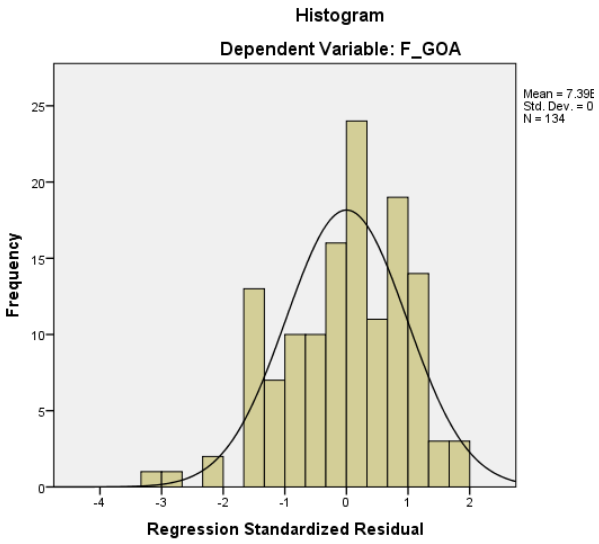
a. Predictors: (Constant), DummyFAS, F_ORP, DummyCGA, F_FIR, F_OER

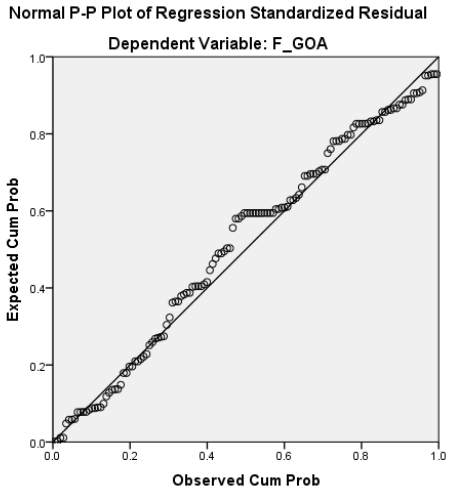
b. Dependent Variable: F_GOA

Heteroscedasticity



Normality of residual





Equation 6: FIV $= \alpha_6 + \beta_{34}DIAP + \beta_{35}IAMI + \beta_{36}TIAI + \beta_{37}IAIO + \beta_{38}IASC + \beta_{39}CGA + \beta_{40}FAS + \varepsilon_6$

Interdependence of error term

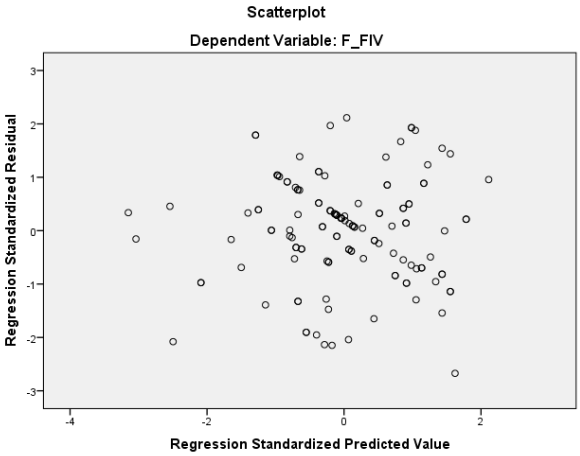
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.663[a]	.440	.409	.76884679	2.325

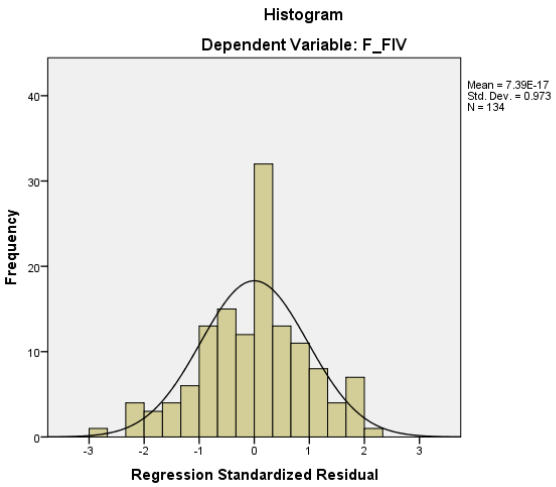
a. Predictors: (Constant), DummyFAS, F_IAMI, F_DIAP, F_TIAI, DummyCGA, F_IAIO, F_IASC

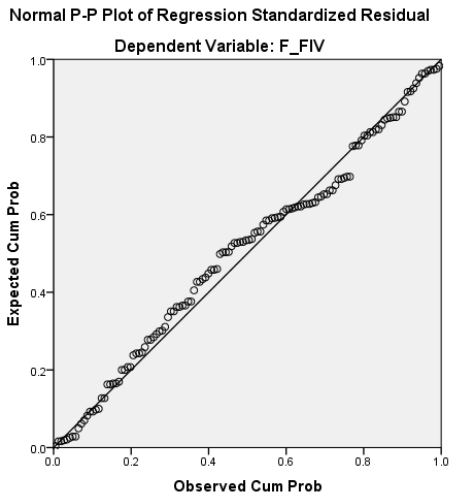
b. Dependent Variable: F_FIV

Heteroscedasticity



Normality of residual





Equation 7: FIV $= \alpha_7 + \beta_{41}GOA + \beta_{42}CGA + \beta_{43}FA + \varepsilon_7$

Interdependence of error term

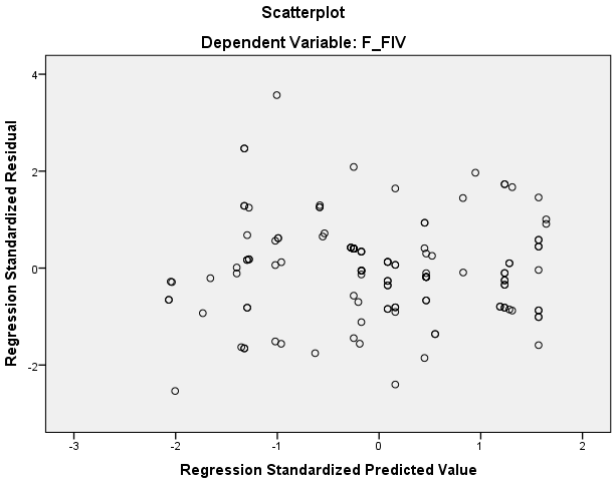
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.639[a]	.408	.394	.77841896	2.480

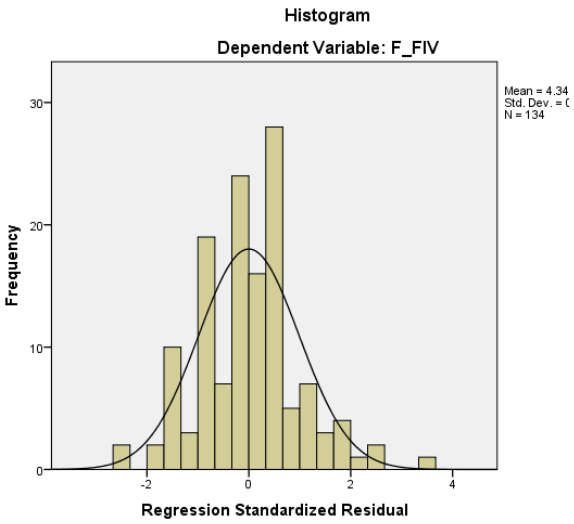
a. Predictors: (Constant), DummyFAS, F_GOA, DummyCGA

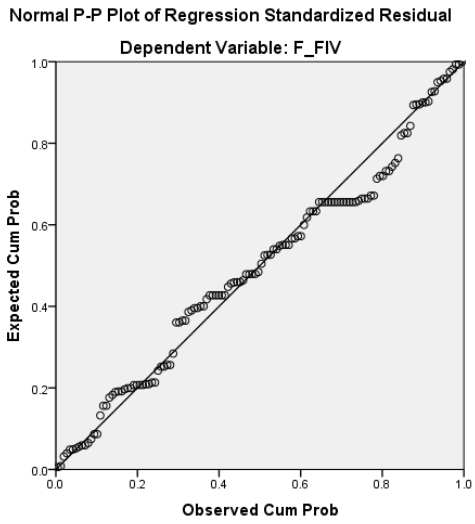
b. Dependent Variable: F_FIV

Heteroscedasticity



Normality of residual





Equation 8: DIAP $= \alpha_8 + \beta_{44}CSV + \beta_{45}TMS + \beta_{46}BAS + \beta_{47}TEA + \beta_{48}ENT + \beta_{49}CGA + \beta_{50}FAS + \varepsilon_8$

Interdependence of error term

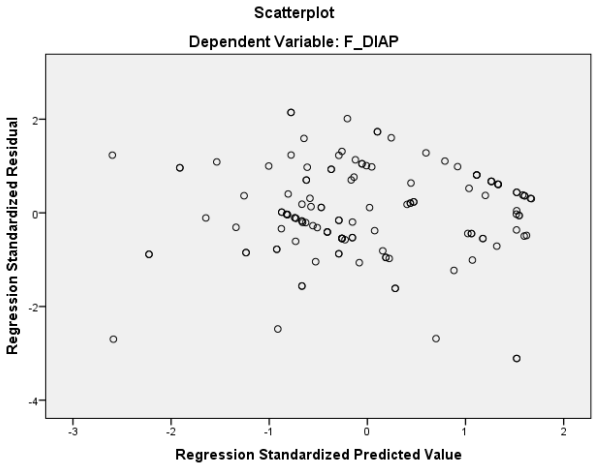
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.684[a]	.468	.438	.74942174	1.906

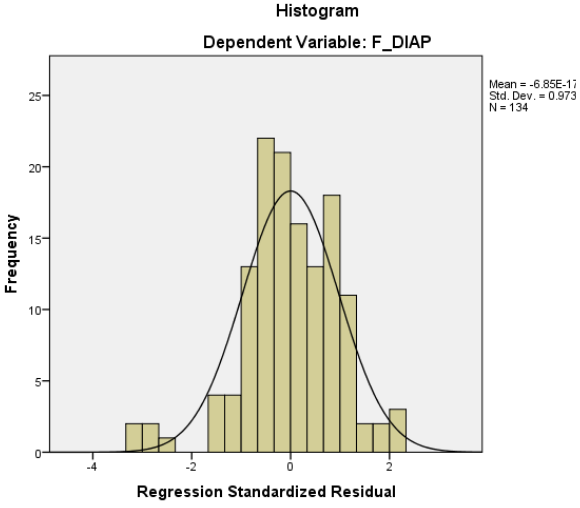
a. Predictors: (Constant), DummyFA, F_TMS, DummyCGA, F_BAS, F_TEA, F_CSV, F_ENT

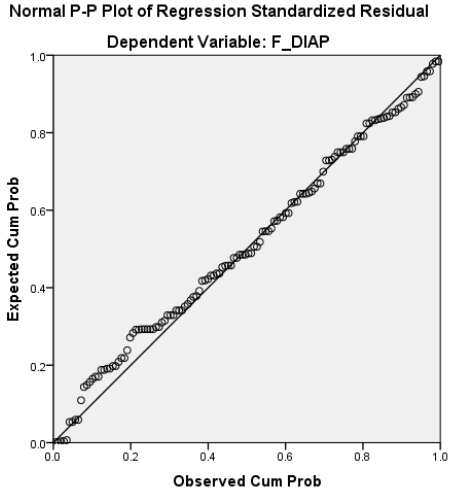
b. Dependent Variable: F_DIAP

Heteroscedasticity



Normality of residual





Equation 9: DIAP $= \alpha_9 + \beta_{51}CSV + \beta_{52}TMS + \beta_{53}BAS + \beta_{54}TEA + \beta_{55}ENT + \beta_{56}GOC + \beta_{57}(CSV*GOC) + \beta_{58}(TMS*GOC) + \beta_{59}(BAS*GOC) + \beta_{60}(TA*GOC) + \beta_{61}(ET*GOC) + \beta_{62}CGA + \beta_{63}FAS + \varepsilon_9$

Interdependence of error term

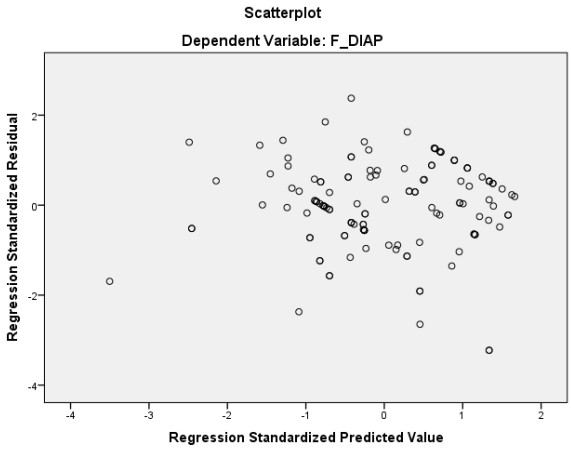
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.741[a]	.549	.500	.70694340	1.894

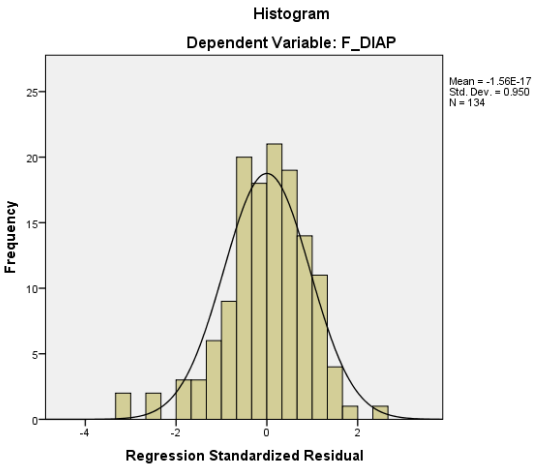
a. Predictors: (Constant), DummyFA, F_TMS, F11_ENT_GOC, F11_TMS_GOC, F_BAS, DummyCGA, F11_CSV_GOC, F_TEA, F_GOC, F11_BAS_GOC, F_CSV, F11_TEA_GOC, F_ENT

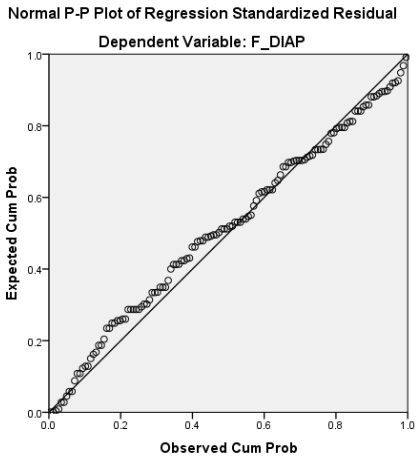
b. Dependent Variable: F_DIAP

Heteroscedasticity



Normality of residual





Equation 10: $IAMI = \alpha_{10} + \beta_{64}CSV + \beta_{65}TMS + \beta_{66}BAS + \beta_{67}TEA + \beta_{68}ENT + \beta_{69}CGA + \beta_{70}FAS + \varepsilon_{10}$

Interdependence of error term

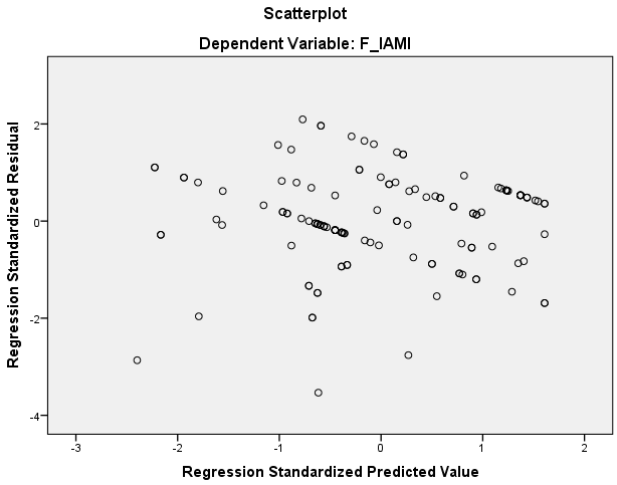
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.600[a]	.360	.324	.82220279	1.899

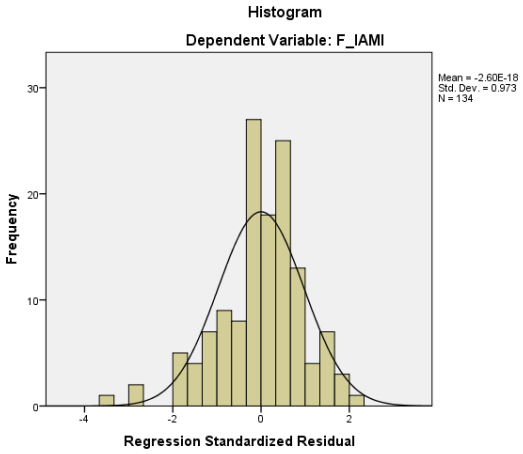
a. Predictors: (Constant), DummyFA, F_TMS, DummyCGA, F_BAS, F_TEA, F_CSV, F_ENT

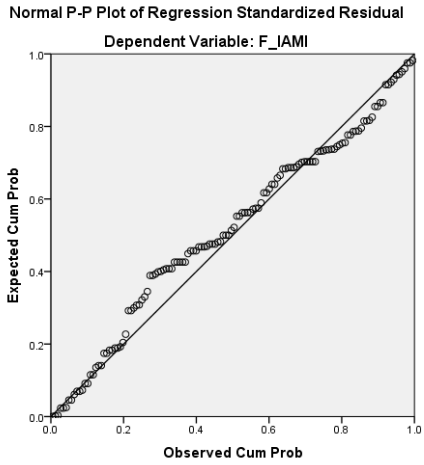
b. Dependent Variable: F_IAMI

Heteroscedasticity



Normality of residual





Equation 11: $IAMI = \alpha_{11} + \beta_{71}CSV + \beta_{72}TMS + \beta_{73}BAS + \beta_{74}TEA + \beta_{75}ENT + \beta_{76}GOC + \beta_{77}(CSV*GOC) + \beta_{78}(TMS*GOC) + \beta_{79}(BAS*GOC) + \beta_{80}(TA*GOC) + \beta_{81}(ET*GOC) + \beta_{82}CGA + \beta_{83}FAS + \varepsilon_{11}$

Interdependence of error term

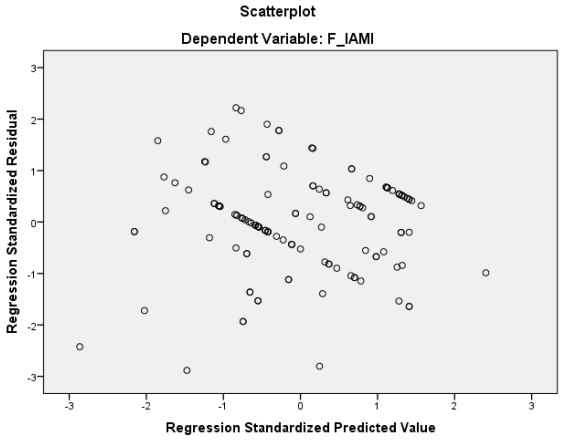
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.640[a]	.410	.346	.80881967	1.765

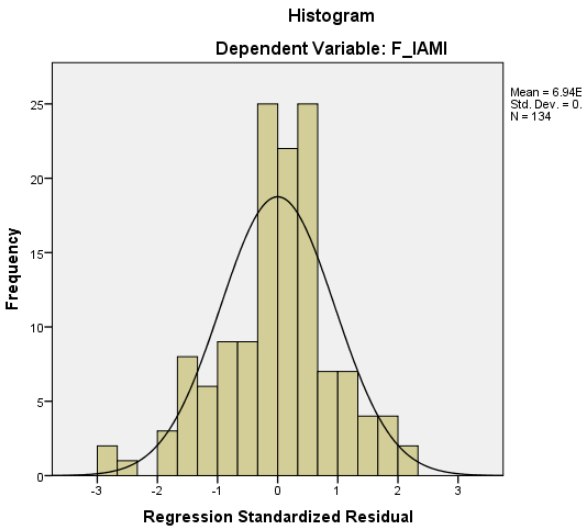
a. Predictors: (Constant), DummyFA, F_TMS, F11_ENT_GOC, F11_TMS_GOC, F_BAS, DummyCGA, F11_CSV_GOC, F_TEA, F_GOC, F11_BAS_GOC, F_CSV, F11_TEA_GOC, F_ENT

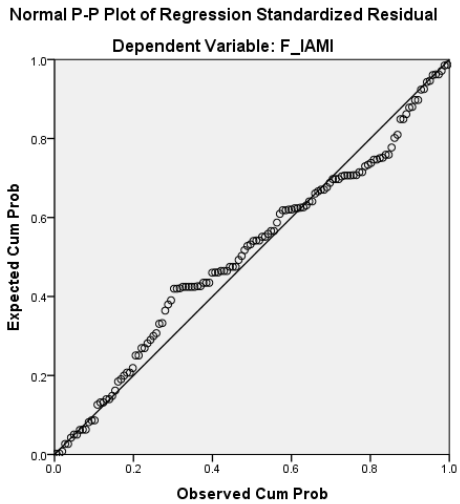
b. Dependent Variable: F_IAMI

Heteroscedasticity



Normality of residual





Equation 12: $TIAI = \alpha_{12} + \beta_{84}CSV + \beta_{85}TMS + \beta_{86}BAS + \beta_{87}TEA + \beta_{88}ENT + \beta_{89}CGA + \beta_{90}FAS + \varepsilon_{12}$

Interdependence of error term

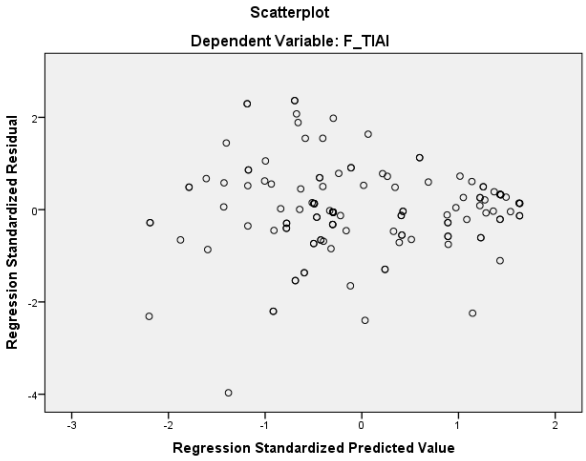
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.701[a]	.492	.463	.73251557	2.181

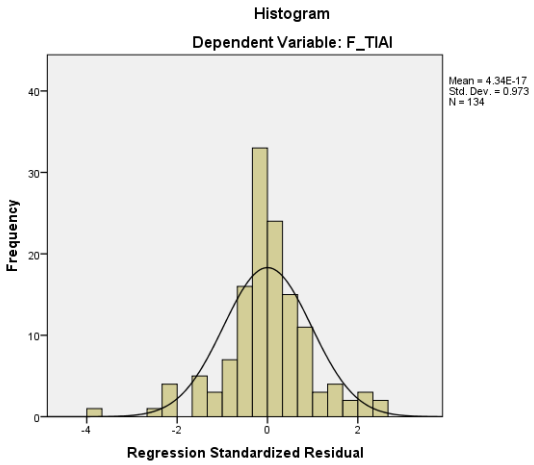
a. Predictors: (Constant), DummyFA, F_TMS, DummyCGA, F_BAS, F_TEA, F_CSV, F_ENT

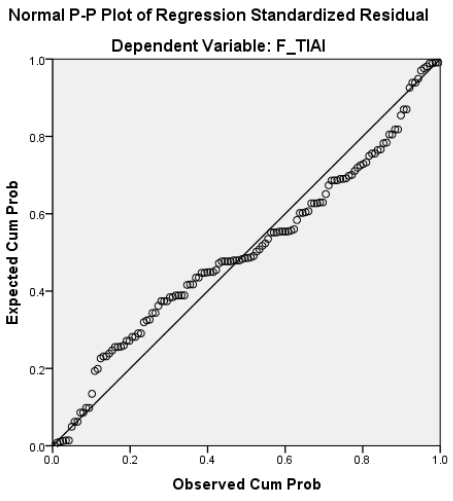
b. Dependent Variable: F_TIAI

Heteroscedasticity



Normality of residual





Equation 13: $TIAI = \alpha_{13} + \beta_{91}CSV + \beta_{92}TMS + \beta_{93}BAS + \beta_{94}TEA + \beta_{95}ENT + \beta_{96}GOC + \beta_{97}(CSV*GOC) + \beta_{98}(TMS*GOC) + \beta_{99}(BAS*GOC) + \beta_{100}(TA*GOC) + \beta_{101}(ET*GOC) + \beta_{102}CGA + \beta_{103}FAS + \varepsilon_{13}$

Interdependence of error term

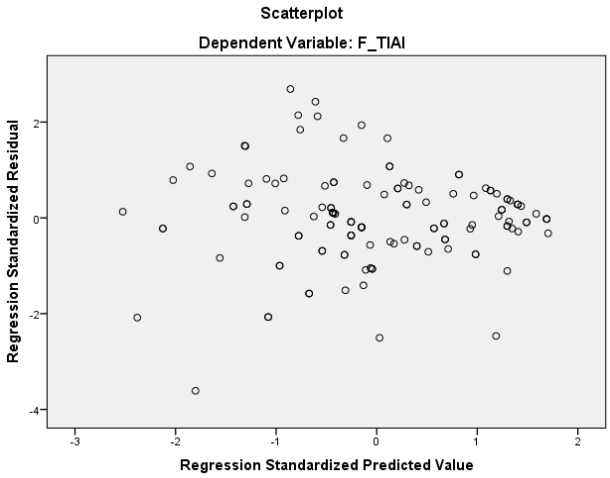
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.747[a]	.557	.509	.70048402	1.985

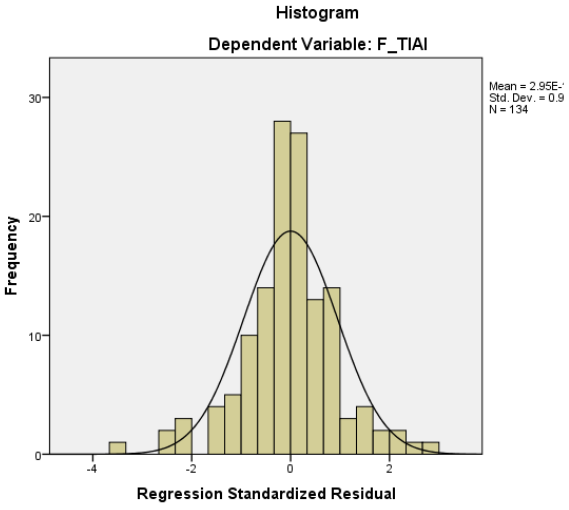
a. Predictors: (Constant), DummyFA, F_TMS, F11_ENT_GOC, F11_TMS_GOC, F_BAS, DummyCGA, F11_CSV_GOC, F_TEA, F_GOC, F11_BAS_GOC, F_CSV, F11_TEA_GOC, F_ENT

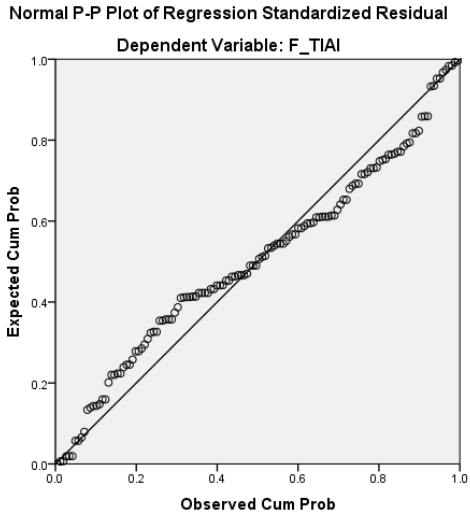
b. Dependent Variable: F_TIAI

Heteroscedasticity



Normality of residual





Equation 14: $IAIO = \alpha_{14} + \beta_{104}CSV + \beta_{105}TMS + \beta_{106}BAS + \beta_{107}TEA + \beta_{108}ENT + \beta_{109}CGA + \beta_{110}FAS + \varepsilon_{14}$

Interdependence of error term

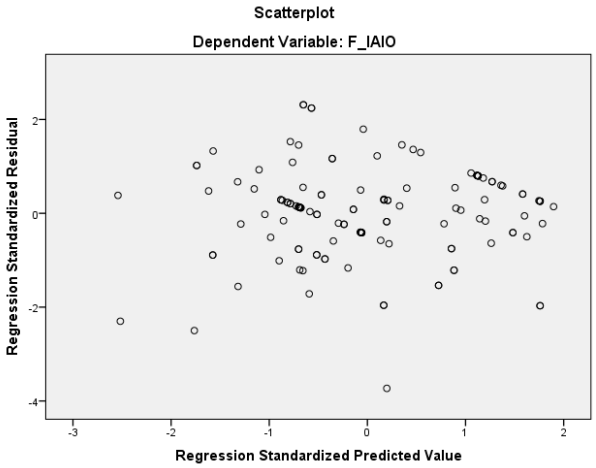
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.659[a]	.434	.402	.77310460	2.008

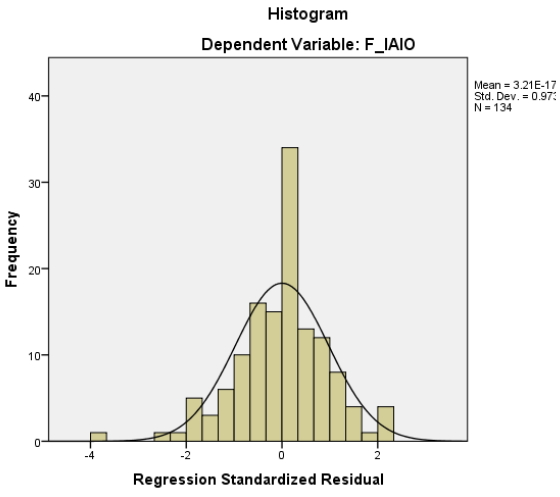
a. Predictors: (Constant), DummyFA, F_TMS, DummyCGA, F_BAS, F_TEA, F_CSV, F_ENT

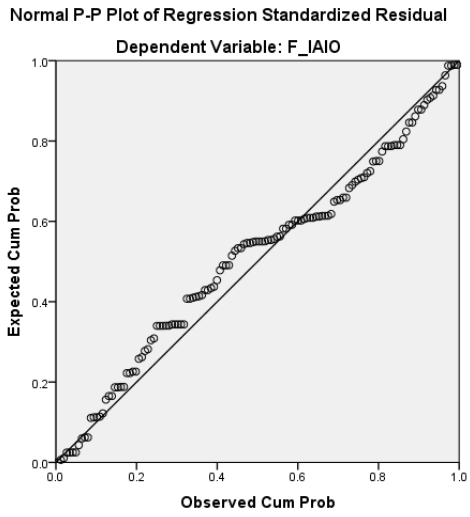
b. Dependent Variable: F_IAIO

Heteroscedasticity



Normality of residual





Equation 15: ***IAIO*** $= \alpha_{15} + \beta_{111}CSV + \beta_{112}TMS + \beta_{113}BAS + \beta_{114}TEA + \beta_{115}ENT + \beta_{116}GOC + \beta_{117}(CSV*GOC) + \beta_{118}(TMS*GOC) + \beta_{119}(BAS*GOC) + \beta_{120}(TA*GOC) + \beta_{121}(ET*GOC) + \beta_{122}CGA + \beta_{123}FAS + \varepsilon_1$

Interdependence of error term

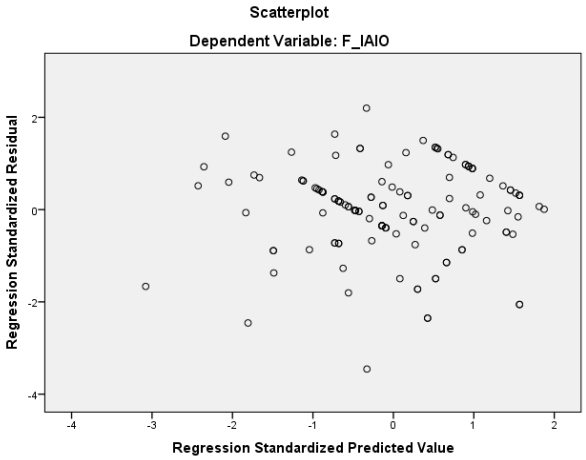
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.722[a]	.522	.470	.72795723	1.886

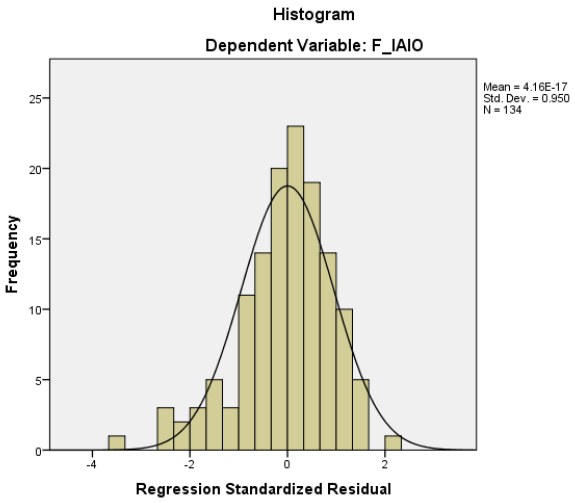
a. Predictors: (Constant), DummyFA, F_TMS, F11_ENT_GOC, F11_TMS_GOC, F_BAS, DummyCGA, F11_CSV_GOC, F_TEA, F_GOC, F11_BAS_GOC, F_CSV, F11_TEA_GOC, F_ENT

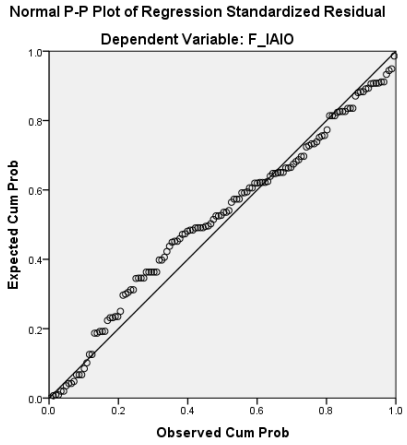
b. Dependent Variable: F_IAIO

Heteroscedasticity



Normality of residual





Equation 16: $IASC = \alpha_{16} + \beta_{124}CSV + \beta_{125}TMS + \beta_{126}BAS + \beta_{127}TEA + \beta_{128}ENT + \beta_{129}CGA + \beta_{130}FAS + \varepsilon_{16}$

Interdependence of error term

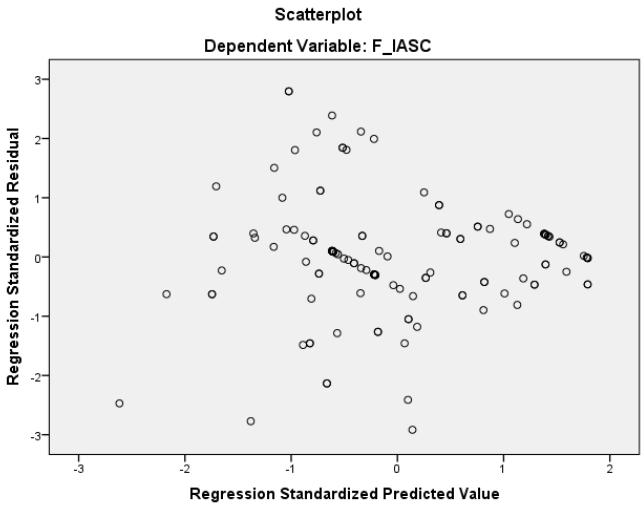
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.717[a]	.514	.487	.71652452	2.392

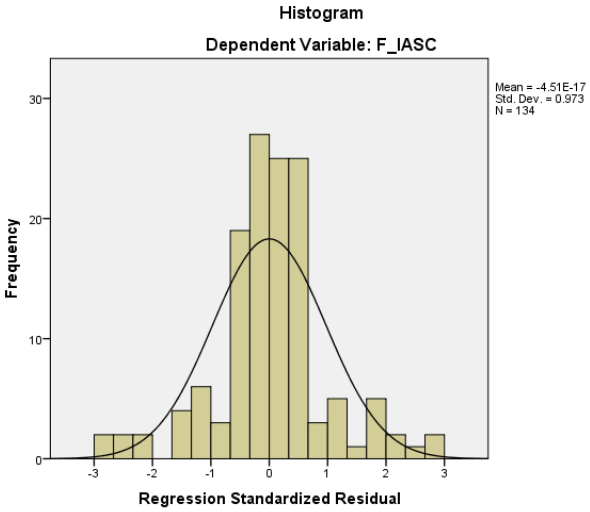
a. Predictors: (Constant), DummyFA, F_TMS, DummyCGA, F_BAS, F_TEA, F_CSV, F_ENT

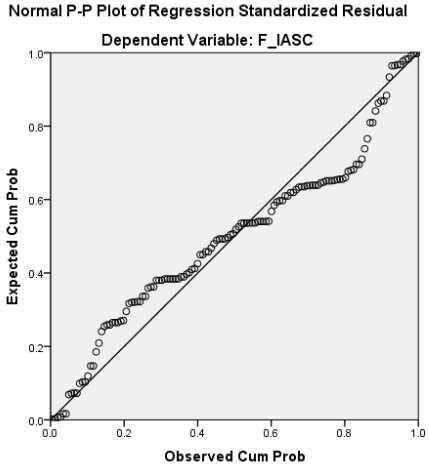
b. Dependent Variable: F_IASC

Heteroscedasticity



Normality of residual





Equation 17: IASC = $\alpha_{17} + \beta_{131}CSV + \beta_{132}TMS + \beta_{133}BAS + \beta_{134}TEA + \beta_{135}ENT + \beta_{136}GOC + \beta_{137}(CSV*GOC) + \beta_{138}(TMS*GOC) + \beta_{139}(BAS*GOC) + \beta_{140}(TA*GOC) + \beta_{141}(ET*GOC) + \beta_{142}CGA + \beta_{143}FAS + \varepsilon_{17}$

Interdependence of error term

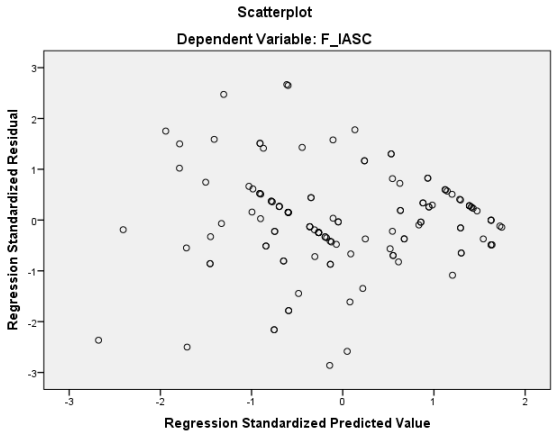
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.782[a]	.612	.569	.65612701	2.204

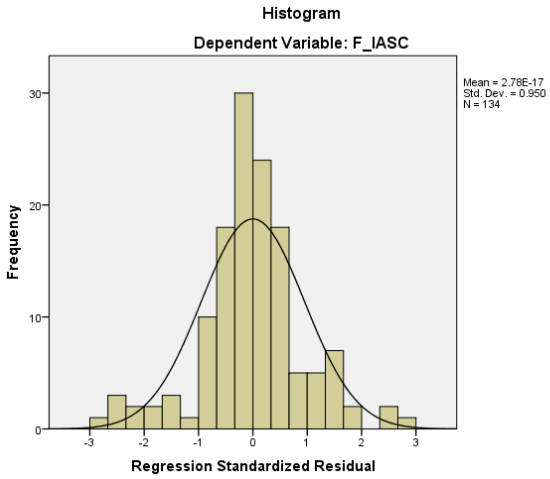
a. Predictors: (Constant), DummyFA, F_TMS, F11_ENT_GOC, F11_TMS_GOC, F_BAS, DummyCGA, F11_CSV_GOC, F_TEA, F_GOC, F11_BAS_GOC, F_CSV, F11_TEA_GOC, F_ENT

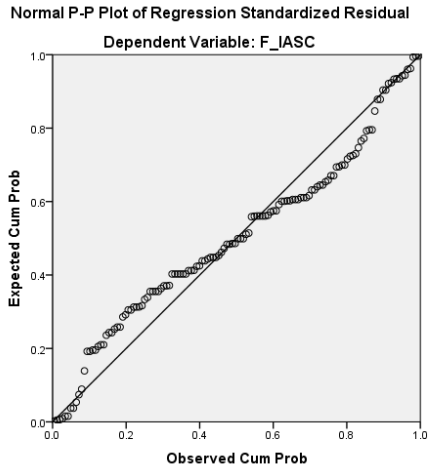
b. Dependent Variable: F_IASC

Heteroscedasticity



Normality of residual





Multicollinearity

Equation	Maximum VIF	Equation	Maximum VIF
1	2.922	10	2.448
2	2.922	11	5.498
3	2.922	12	2.448
4	2.922	13	5.498
5	3.243	14	2.448
6	2.922	15	5.498
7	1.178	16	2.448
8	2.448	17	5.498
9	5.498		

APPENDIX F

Cover Letters and Questionnaire: English Version

Questionnaire for the Ph.D. Dissertation Research Entitled

"Internal Audit Intelligence Orientation and Firm Value:

An Empirical Investigation of Listed Firms in Thailand"

Directions

This research is a part of doctoral dissertation of Miss SatiyaKlinsukhon at the Mahasarakham Business School, Mahasarakham University, Thailand. The objective of this research is to examine the effect of internal audit intelligence orientation on firm value of listed firms in Thailand. The questionnaire is divided into 7 parts as follows:

Part 1: Personal information about internal audit director of manager of listed firms in Thailand,

Part 2: General information about of listed firms in Thailand,

Part 3: Opinion on internal audit intelligence orientation of listed firms in Thailand,

Part 4: Opinion on firm performance of listed firms in Thailand,

Part 5: Opinion on internal environmental factors of listed firms in Thailand,

Part 6: Opinion on external environmental factors of listed firms in Thailand and,

Part 7: Recommendations and suggestions in the operation of listed firms in Thailand.

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

Do you want a summary of the results?

( ) Yes, e-mail …… ( ) No

If you want a summary of this research, please indicate your E-mail address or attach yourbusiness card with this questionnaire. The summary will be mailed to you as soon as the analysis is completed.

Thank you for your time answering all questions. I have no doubt that your answer will providevaluable information for academic advancement. If you have any questions with respect to thisresearch, please contact me directly.

Sincerely yours,

(Miss SatiyaKlinsukhon)
Ph.D. Student
Mahasarakham Business School
Mahasarakham University, Thailand

Contact Info:

Office No: 043-754333 ext. 3431
Fax No: 043-754422
Cell phone: 091-0655354
E-mail: the_nicezz@hotmail.com

Part 1 Personal Information of Internal Audit Director/ Internal audit Directors of Listed Firms in Thailand

1. Gender

☐Male ☐Female

2. Age

☐Less than 30 years old ☐30-40 years old

☐41-50 years old ☐More than 50 years old

3. Marital status

☐Single ☐Married

☐Divorced

4. Education level

☐Bachelor's degree ☐Higher than Bachelor's degree

5. Working experience

☐Less than 5 years ☐5-10 years

☐11-15 years ☐More than 15 years

6. Average revenue per month

☐Less than 100,000 Baht ☐100,000 - 125,000 Baht

☐125,001 - 150,000 Baht ☐More than 150,000 Baht

7. Working positions

☐Internal Audit Directors ☐Internal Audit Managers

☐Other (Please specify) ……

Part 2 General Information of Listed Firms in Thailand

1. Industrial category

☐Agro and Food Industry ☐Consumer Products

☐Financials ☐Industrials

☐Property & Construction ☐Resources

☐Services ☐Technology

☐Other (Please specify) ……

2. Authorized capital of the firm

☐Less than 1,000,000,000 Baht ☐1,000,000,001 - 5,000,000,000 Baht

☐5,000,000,001 - 9,000,000,000 Baht ☐More than 9,000,000,000 Baht

3. Total assets of the firm

☐Less than 10,000,000,000 Baht ☐10,000,000,001 - 50,000,000,000 Baht

☐50,000,000,001 - 90,000,000,000 Baht ☐More than 90,000,000,000 Baht

4. The period of tune registers in the Stock Exchange of Thailand

☐Less than 5 years ☐5 -10 years

☐11-15 years ☐More than 15 years

5. Corporate governance scoring of the firm at 2016 ?

☐Excellent ☐Very Good

☐Good ☐Satisfactory

☐Pass ☐Other

Part 3 Opinion on internal audit intelligence orientation of listed firms in Thailand

Internal Audit Intelligence Orientation	Opinion Levels				
	Strongly Agree 5	Agree 4	Not Sure 3	Disagree 2	Strongly Disagree 1
Dynamic Internal Audit Planning 1. Firm believes that the internal audit plan consistent with the situation can help the operation of the internal audit more effective.					
2. Firm gives priority on the analysis and synthesis of the way for internal auditing with changing internal and external environment that can help performance of internal audits enable better.					
3. Firm focus on defining the guidelines for internal audit implementation that it has flexible that make the internal audit work properly and in accordance with the situation.					
4. Firm emphasizes on reviewing and improves of internal audit planning can help reliable internal audit operations					
5. Firm supports the personnel in internal audit unit have participate in the planning that can help internal audit activity to cover all activities of the business.					
Internal Audit Method Integration 6.Firm believes that the audit method integration systematically help the internal audit work achieve its goals well.					
7. Firm focus oncombining a variety of audit methods to check information within a comprehensive and complete, and increasing the quality of the internal audit.					
8. Firm gives priority on integrating skills, knowledge and audit method together that make increase the potential for internal audits					
9. Firm encourages to bring their knowledge and experience of internal audit in the past to share links with other people in a systematic way, that can help the process of internal auditeffectiveness.					
10. Firm gives priority on link linking the audit process can increase capability of internal audit.					

Part 3 Opinion on internal audit intelligence orientation of listed firms in Thailand (Continued)

Internal Audit Intelligence Orientation	Opinion Levels				
	Strongly Agree 5	Agree 4	Not Sure 3	Disagree 2	Strongly Disagree 1
Technology-Based Internal Audit Implementation 11. Firm believes thatapplication of technology in performing internal audits makeincrease the quality of internal audit work.					
12. Firm emphasizes on internal audit staffs to design or use software package program of the risk assessment and electronics data processing audit that help achieve goals of internal audit operation.					
13. Firm supports the use of computers for internal audits that increase the data access and diversification of information, completely and data update.					
14. Firm encourages the internal audit staff's to technological train , knowledge and capabilitydevelopment that increase the operate efficiency and effectiveness.					
Internal Audit Innovation Orientation 15. Firm believes that adopting new tools or new methods or new techniques in internal auditassist the internal audit to achieve goal.					
16. Firm supports the creation of new internal audit methods or internal audit techniques help improve the internal audit process efficiently.					
17. Firm emphasizes on improving, developing, strategies and techniques for internal auditing and makes the internal audit work properly and appropriately.					
18. Firm focuses on building a quality internal audit team to make the internal audit work achieve its goals well.					
Internal Audit Skepticism Competency 19. Firm believes that the ability to use skepticism in the internal audit is very good will ensure that the results of the internal audit are accurate and reliable.					
20. Firm gives priority on assessment of uncertainty situations, identifying and monitoring of threats and opportunity that may have the negative effects on an organization's operation can helps internal audit to achieve goal.					

Part 3 Opinion on internal audit intelligence orientation of listed firms in Thailand (Continued)

Internal Audit Intelligence Orientation	Opinion Levels				
	Strongly Agree 5	Agree 4	Not Sure 3	Disagree 2	Strongly Disagree 1
21. Firm focus on continuity internal control evaluation can improve and revise system.					
22. Firm emphasizes on have an internal audit team meeting continuously at every stage of the operation to ensure that the audit covers all activities of the entity and to enhance the effectiveness of internal audits.					

Part 4 Opinion on firm performance of listed firms in Thailand

Internal Audit Intelligence Orientation	Opinion Levels				
	Strongly Agree 5	Agree 4	Not Sure 3	Disagree 2	Strongly Disagree 1
Operational Risk Protection 1. Firm can operate smoothly as planned without problems or obstacles to the set goal.					
2. Firm can reduce errors in operation as well to operate effectively.					
3. Firm can distribute and reduce the risk of operation business in an acceptable level.					
4. Firm has the potential for operate that can avoid the uncertainty and the loss to occur in the operation.					
5. Firm has monitoring the mistakes that may affect the business systematically.					
Financial Information Reliability 6. Firm information in the financial reports containing full and complete compliance with the rules set accounting standards.					
7. Firm presented information about the performance both financial and non-financial information to demonstrate the real performanceof business.					
8. Firm presented the crucial and relevant financial information to the decision timeliness.					
9. Firm enable present information in financial reports that can be compared to any other business properly and are more appropriate.					

Part 4 Opinion on firm performance of listed firms in Thailand (Continued)

Internal Audit Intelligence Orientation	Opinion Levels				
	Strongly Agree 5	Agree 4	Not Sure 3	Disagree 2	Strongly Disagree 1
Organization Expenditure Reduction 10. Firm has operating expenses in current period lower than past period.					
11. Firm has performance more than standard that has operating expenses within the criteria.					
12. Firm use resources to operate economically and cost effectively.					
13. Firm has successful operate of a business strategy with low cost.					
Goal Achievement 14. Firm has growing on the asset,sales and profits according to the goals.					
15. Firm has the operating performance increasingcontinued compared with recent years.					
16. Firm has the market shareincreasingly to enhance steadily in thelong run.					
17. Firm has sales growth better than its competitors.					
Firm Value 18. Firm has a reputation for being well-known for its ability to operate effectively.					
19. Firmcan be managed professionally.					
20. Firm has good corporate governance andreceives the acceptation from external users that firm can present information transparency and reliable.					
21. Firm has the ability and potential to sustain business growth and survive despite any obstacle or crisis.					

Part 5 Opinion on internal environmental factors of listed firms in Thailand

Internal Audit Intelligence Orientation	Opinion Levels				
	Strongly Agree 5	Agree 4	Not Sure 3	Disagree 2	Strongly Disagree 1
Corporate Sustainability Vision 1.Firm believes that set of the guidelines, the way and policies focusing on survival goals and long-term growthmake the operation of the organization achieve its goals better.					
2. Firm encourages employee to participate in the vision of the organizationhelp create a better corporate goal.					
3. Firm support research and product development and systematic and concrete administration will improve the quality and efficiency of operations.					
4. Firm encourages the modern technology implementation and fast in systematic management help operation succeed.					
Top Management Support 5. Executives support the necessary resources, budget, and other facilitiesmake the operation more efficient.					
6. Executives encourage staff to learn and train new techniques and new procedures, which will help them optimize competitiveness.					
7. Executives emphasizes on the development of management system make operate under various circumstances.					
8. Executives focus on applying new techniques and new methods in operation always,it gives more useful information to make decisions.					
Best Accounting System 9. Firm believes that having a best accounting systemmake accounting practice more effective.					
10. Firm have linkedaccounting entrysystematically will ensure accounting informationaccurately,completely and timeliness.					
11. Firmfocus onto linked accounting system and management system systematically help integrate of information apply to decision making.					
12. Firm supports continuous improvement and development of the accounting system help to get the information up to date.					

Part 5 Opinion on internal environmental factors of listed firms in Thailand

(Continued)

Internal Audit Intelligence Orientation	Opinion Levels				
	Strongly Agree 5	Agree 4	Not Sure 3	Disagree 2	Strongly Disagree 1
Governance Culture					
13. Firm believes that corporate culture that is focused on good governancemake the operation more successful.					
14. Firm is committed to the administration under the rules with regard to creating value for all stakeholders, including the consideration of the responsibility to the community and society as a whole.					
15. Firm focuses on transparent operations make the operation achieve the goal and it helps build trust with stakeholders.					
16. Firm encourages employees adherence to integrity andaccuracy, as well as honest, sincere in theirwork.					

Part 6 Opinion on external environmental factors of listed firms in Thailand

Internal Audit Intelligence Orientation	Opinion Levels				
	Strongly Agree 5	Agree 4	Not Sure 3	Disagree 2	Strongly Disagree 1
Technology Acceptance					
1.At present, technology is changing rapidly make firmmore learningand try to standing technology be able to apply it.					
2. Technology is constantly evolving, make firm must strive to seek and analyze the qualities and capabilities of new technologies to be used to enhance the operation of the business.					
3. Diverse technology,make firm must be applied technology consistent with the operation of the business.					
4. Today's technology is more modern,make firm easily accessible will help firm can be procedural development to efficiency and effectiveness.					

Part 6 Opinion on external environmental factors of listed firms in Thailand

(Continued)

Internal Audit Intelligence Orientation	Opinion Levels				
	Strongly Agree 5	Agree 4	Not Sure 3	Disagree 2	Strongly Disagree 1
Environmental Turbulence					
5. Current fluctuate business environment, must learning and understanding to be operation management consistent with the situation.					
6. Today's customers have a variety of needs make business must focus on the study of understanding to better respond to customer needs.					
7. New competitors in the same industry happen a lot make firm musteffort be made to continually improve helpfirmsurvival.					
8. The intensity regulations in current make firm must concentrate on administration which compliance with more standards practice and regulation guideline.					

Part 7 Recommendations and suggestions in the operation of listed firms in Thailand……
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Thank you for your time and attention to this matter. Please fold and return in providedenvelope and return to me. If you desire a summary report of this study, please supply with thisquestionnaire. The summary will be mailed to you upon the completion of data analysis.

APPENDIX G

Cover Letters and Questionnaire: Thai Version

แบบสอบถามเพื่อการวิจัย
เรื่องการมุ่งเน้นความฉลาดทางการตรวจสอบภายในและมูลค่าขององค์กร:
การตรวจสอบเชิงประจักษ์ของบริษัทจดทะเบียนในตลาดหลักทรัพย์

คำชี้แจง

โครงการวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาวิจัยเรื่อง“การมุ่งเน้นความฉลาดทางการตรวจสอบภายในและมูลค่าขององค์กร: การตรวจสอบเชิงประจักษ์ของบริษัทจดทะเบียนในตลาดหลักทรัพย์”เพื่อใช้เป็นข้อมูลในการจัดทำวิทยานิพนธ์ในระดับปริญญาเอกของผู้วิจัยในหลักสูตรปรัชญาดุษฎีบัณฑิตสาขาวิชาการบัญชี คณะการบัญชีและการจัดการมหาวิทยาลัยมหาสารคามโทรศัพท์ 043-754333

ข้าพเจ้าใคร่ขอความอนุเคราะห์จากท่านผู้ตอบแบบสอบถามได้โปรดตอบแบบสอบถามชุดนี้โดยรายละเอียดของแบบสอบถามประกอบด้วยส่วนคำถาม 7 ตอนดังนี้

ตอนที่ 1 ข้อมูลทั่วไปของผู้บริหารฝ่ายตรวจสอบภายในของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

ตอนที่ 2 ข้อมูลทั่วไปของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

ตอนที่ 3 ความคิดเห็นเกี่ยวกับการมุ่งเน้นความฉลาดทางการตรวจสอบภายในของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

ตอนที่ 4 ความคิดเห็นเกี่ยวกับผลการดำเนินงานของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

ตอนที่ 5 ความคิดเห็นเกี่ยวกับปัจจัยภายในที่มีผลต่อการมุ่งเน้นความฉลาดทางการตรวจสอบภายในของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

ตอนที่ 6 ความคิดเห็นเกี่ยวกับปัจจัยภายนอกที่มีผลต่อการมุ่งเน้นความฉลาดทางการตรวจสอบภายในของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

ตอนที่ 7 ข้อคิดเห็นและข้อเสนอแนะเกี่ยวกับการตรวจสอบภายในของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

คำตอบของท่านจะถูกเก็บรักษาเป็นความลับและจะไม่มีการใช้ข้อมูลใดๆที่เปิดเผยเกี่ยวกับตัวท่านในการรายงานข้อมูลรวมทั้งจะไม่มีการร่วมใช้ข้อมูลดังกล่าวกับบุคคลภายนอกอื่นใดโดยไม่ได้รับอนุญาตจากท่าน

ท่านต้องการรายงานสรุปผลการวิจัยหรือไม่

☐ ต้องการ E - mail _____ ☐ ไม่ต้องการ

หากท่านต้องการรายงานสรุปผลการวิจัยโปรดระบุ E-mail Address ของท่านหรือแนบนามบัตรของท่านมากับแบบสอบถามชุดนี้

ผู้วิจัยขอขอบพระคุณที่ท่านได้กรุณาเสียสละเวลาในการตอบแบบสอบถามชุดนี้อย่างถูกต้องครบถ้วนและหวังเป็นอย่างยิ่งว่าข้อมูลที่ได้รับจากท่านจะเป็นประโยชน์อย่างยิ่งต่อการวิจัยในครั้งนี้และขอขอบพระคุณอย่างสูงมา ณโอกาสนี้หากท่านมีข้อสงสัยประการใดเกี่ยวกับแบบสอบถามโปรดติดต่อนางสาวสาธิยา กลิ่นสุคนธ์ซึ่งเป็นผู้วิจัยในครั้งนี้โทรศัพท์เคลื่อนที่ 091-065-5354 หรือ E – mail : the_nicezz@hotmail.com

(นางสาวสาธิยา กลิ่นสุคนธ์)
นิสิตปริญญาเอก สาขาการบัญชี
คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม

<u>ตอนที่ 1</u>ข้อมูลทั่วไปของผู้บริหารฝ่ายตรวจสอบภายในของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

1. เพศ

☐ ชาย ☐ หญิง

2. อายุ

☐ น้อยกว่า 30 ปี ☐30 - 40 ปี

☐41 - 50 ปี ☐ มากกว่า 50 ปี

3. สถานภาพ

☐ โสด ☐ สมรส

☐ หม้าย/หย่าร้าง

4. ระดับการศึกษา

☐ปริญญาตรี ☐ สูงกว่าปริญญาตรี

5. ประสบการณ์ในการทำงานในบริษัท

☐น้อยกว่า 5 ปี ☐5 - 10 ปี

☐ 11 - 15 ปี ☐ มากกว่า 15 ปี

6. รายได้เฉลี่ยต่อเดือน

☐ต่ำกว่า 100,000 บาท ☐100,000 - 125,000 บาท

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

7. ตำแหน่งงานในปัจจุบัน

☐ผู้อำนวยการฝ่ายตรวจสอบภายใน ☐ ผู้จัดการฝ่ายตรวจสอบภายใน

☐ อื่น ๆ (โปรดระบุ).....

<u>ตอนที่ 2</u> ข้อมูลทั่วไปของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทยในปัจจุบัน

1. ประเภทอุตสาหกรรม

☐กลุ่มเกษตรและอุตสาหกรรมอาหาร ☐กลุ่มสินค้าอุปโภคบริโภค

☐กลุ่มธุรกิจการเงิน ☐กลุ่มสินค้าอุตสาหกรรม

☐กลุ่มอสังหาริมทรัพย์และก่อสร้าง ☐กลุ่มทรัพยากร

☐กลุ่มบริการ ☐กลุ่มเทคโนโลยี

☐อื่น ๆ (โปรดระบุ) .....

2. ทุนจดทะเบียนของบริษัท

☐ต่ำกว่า 1,000,000,000 บาท ☐ 1,000,000,001 – 5,000,000,000 บาท

☐5,000,000,001–9,000,000,000 บาท ☐มากกว่า 9,000,000,000 บาท

3. สินทรัพย์รวมบริษัท

☐ต่ำกว่า 10,000,000,000 บาท ☐10,000,000,001 -50,000,000,000 บาท

☐50,000,000,001 – 90,000,000,000 บาท ☐มากกว่า 90,000,000,000 บาท

4. ระยะเวลาจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

☐น้อยกว่า 5 ปี ☐ 5-10 ปี

☐ 11-15 ปี ☐มากกว่า 15 ปี

5. ระดับคะแนนการกำกับดูแลกิจการของบริษัท (CG Scoring) ประจำปี 2559

☐ดีเลิศ ☐ดีมาก

☐ดี ☐ดีพอใช้

☐ผ่าน ☐อื่นๆ

<u>ตอนที่ 3</u> ความคิดเห็นเกี่ยวกับการมุ่งเน้นความฉลาดทางการตรวจสอบภายในของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

การมุ่งเน้นความฉลาดทางการตรวจสอบภายใน (Internal Audit Intelligence Orientation)	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
การวางแผนการตรวจสอบภายในแบบพลวัตร (Dynamic Internal Audit Planning) 1. กิจการเชื่อมั่นว่าการวางแผนงานตรวจสอบภายในที่สอดคล้องกับสถานการณ์ จะช่วยให้การดำเนินงานตรวจสอบภายในมีประสิทธิภาพมากยิ่งขึ้น					
2.กิจการให้ความสำคัญกับการวิเคราะห์และสังเคราะห์ประเด็นแนวทางในการตรวจสอบภายในให้สอดคล้องกับสภาพแวดล้อมทั้งภายในและภายนอกที่เปลี่ยนแปลงไป จะช่วยให้การปฏิบัติงานตรวจสอบภายในบรรลุเป้าหมายได้ดียิ่งขึ้น					
3. กิจการมุ่งเน้นให้มีการกำหนดแนวทางการปฏิบัติงานด้านการตรวจสอบภายในให้มีความยืดหยุ่นตามสถานการณ์ ซึ่งจะทำให้การปฏิบัติงานตรวจสอบภายในเป็นไปอย่างถูกต้องและสอดคล้องกับสถานการณ์					
4. กิจการมุ่งมันให้มีการทบทวนและปรับปรุงการวางแผนการตรวจสอบภายในอย่างสม่ำเสมอ จะช่วยให้การดำเนินงานตรวจสอบภายในมีความน่าเชื่อถือ					
5. กิจการสนับสนุนให้บุคลากรในหน่วยงานตรวจสอบเข้ามามีส่วนร่วมในการวางแผนการตรวจสอบ ซึ่งจะช่วยให้การปฏิบัติงานตรวจสอบภายในครอบคลุมในทุกกิจกรรมของกิจการ					
การบูรณาการวิธีการตรวจสอบภายใน (Internal Audit Method Integration) 6. กิจการเชื่อมั่นว่าการบูรณาการวิธีการตรวจสอบอย่างเป็นระบบ จะช่วยให้การปฏิบัติงานตรวจสอบภายในบรรลุเป้าหมายได้เป็นอย่างดี					
7. กิจการมุ่งเน้นให้มีการผสมผสานวิธีการตรวจสอบที่มีความหลากหลายเข้าด้วยกันอย่างเป็นระบบ ซึ่งจะทำให้ได้ข้อมูลที่ละเอียดครอบคลุมรอบด้านและก่อให้เกิดคุณภาพในการตรวจสอบภายในเพิ่มมากขึ้น					

ตอนที่ 3 (ต่อ)

การมุ่งเน้นความฉลาดทางการตรวจสอบภายใน (Internal Audit Intelligence Orientation)	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
การบูรณาการวิธีการตรวจสอบภายใน (Internal Audit Method Integration) 8. กิจการให้ความสำคัญกับการบูรณาการทักษะความรู้ ความสามารถ และวิธีการตรวจสอบภายในเข้าไว้ด้วยกัน จะทำให้สามารถเพิ่มศักยภาพในการตรวจสอบภายในได้เป็นอย่างดี					
9. กิจการสนับสนุนให้บุคลากรนำความรู้และประสบการณ์การตรวจสอบภายในในอดีตมาแบ่งปันร่วมกับบุคลากรอื่นอย่างเป็นระบบจะช่วยให้การปฏิบัติงานตรวจสอบภายในที่มีประสิทธิภาพมากยิ่งขึ้น					
10. กิจการให้ความสำคัญกับการเชื่อมโยงกระบวนการตรวจสอบต่างๆให้เป็นระบบ จะช่วยให้บรรลุประสิทธิผลการตรวจสอบภายในมากขึ้น					
การประยุกต์ใช้เทคโนโลยีในการตรวจสอบภายใน (Technology-Based Internal Audit Implementation) 11. กิจการเชื่อมั่นว่าการประยุกต์ใช้เทคโนโลยีในการปฏิบัติงานตรวจสอบภายในจะทำให้การปฏิบัติงานด้านการตรวจสอบภายในมีคุณภาพมากยิ่งขึ้น					
12. กิจการมุ่งมั่นในการออกแบบและนำโปรแกรมสำเร็จรูปที่มีประสิทธิภาพมาช่วยในการประเมินความเสี่ยงและตรวจสอบระบบสารสนเทศของกิจการ ซึ่งจะช่วยให้การปฏิบัติงานการตรวจสอบภายในบรรลุเป้าหมายได้เป็นอย่างดี					
13. กิจการสนับสนุนให้มีการนำคอมพิวเตอร์มาช่วยในการตรวจสอบภายใน ซึ่งจะเพิ่มความสารถในการเข้าถึงข้อมูลและทำให้ได้มาซึ่งข้อมูลที่หลากหลาย รอบด้านและทันสมัยมากขึ้น					
14. กิจการส่งเสริมให้บุคลากรฝึกอบรม พัฒนาทักษะความรู้และความสามารถในด้านเทคโนโลยีจะช่วยเพิ่มประสิทธิภาพและประสิทธิผลในการปฏิบัติงาน					

ตอนที่ 3 (ต่อ)

การมุ่งเน้นความฉลาดทางการตรวจสอบภายใน (Internal Audit Intelligence Orientation)	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
การมุ่งเน้นนวัตกรรมการตรวจสอบภายใน (Internal Audit Innovation Orientation) 15. กิจการเชื่อมั่นว่าการนำเครื่องมือหรือวิธีการหรือเทคนิคใหม่ๆ มาใช้ในการปฏิบัติงานตรวจสอบภายใน จะช่วยให้กิจการสามารถบรรลุผลในการตรวจสอบได้ตรงตามเป้าหมายอย่างมีประสิทธิภาพ					
16. กิจการสนับสนุนให้มีการสร้างวิธีการการตรวจสอบภายในหรือเทคนิคการตรวจสอบภายในแบบใหม่ๆจะช่วยให้สามารถปรับปรุงวิธีการปฏิบัติงานตรวจสอบภายในให้มีประสิทธิภาพมากยิ่งขึ้น					
17. กิจการให้ความสำคัญกับการปรับปรุงพัฒนากลยุทธ์และเทคนิคในการตรวจสอบภายในใหม่ๆ อยู่เสมอทำให้การปฏิบัติงานตรวจสอบภายในเป็นไปอย่างถูกต้องเหมาะสมและสอดคล้องกับสถานการณ์					
18. กิจการมุ่งเน้นการสร้างทีมตรวจสอบภายในที่มีคุณภาพซึ่งจะทำให้การดำเนินงานตรวจสอบภายในบรรลุเป้าหมายได้เป็นอย่างดี					
ความสามารถในการใช้วิจารณญาณในการตรวจสอบภายใน (Internal Audit Skepticism Competency) 19. กิจการเชื่อมั่นว่าการมีความสามารถในการใช้วิจารณญาณในการตรวจสอบได้เป็นอย่างดี ซึ่งจะทำให้ผลลัพธ์ของการตรวจสอบภายในมีความถูกต้อง แม่นยำและน่าเชื่อถือมากยิ่งขึ้น					
20. กิจการให้ความสำคัญกับการประเมินสถานการณ์ความไม่แน่นอน การระบุและเฝ้าระวังปัจจัยคุกคามและโอกาสที่จะเกิดผลกระทบเชิงลบต่อการดำเนินงานของกิจการจะช่วยให้การตรวจสอบภายในบรรลุผลสำเร็จมากขึ้น					
21. กิจการมุ่งเน้นให้มีการประเมินความเหมาะสมและเพียงพอของระบบการควบคุมภายในอย่างต่อเนื่องและสม่ำเสมอจะช่วยให้สามารถนำไปปรับปรุงและแก้ไขระบบงานให้ดียิ่งขึ้น					

ตอนที่ 3 (ต่อ)

การมุ่งเน้นความฉลาดทางการตรวจสอบภายใน (Internal Audit Intelligence Orientation)	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
ความสามารถในการใช้วิจารณญาณในการตรวจสอบภายใน (Internal Audit Skepticism Competency)					
22.กิจการมุ่งมั่นให้มีการประชุมทีมงานตรวจสอบภายในอย่างต่อเนื่องในทุกขั้นตอนของการปฏิบัติงานเพื่อให้แน่ใจว่าการตรวจสอบได้ครอบคลุมในทุกกิจกรรมของกิจการและเพิ่มศักยภาพในการตรวจสอบภายในให้มีประสิทธิภาพมากขึ้น					

ตอนที่ 4ความคิดเห็นเกี่ยวกับผลการดำเนินงานของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

ผลการดำเนินงาน (Firm Performance)	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
การป้องกันความเสี่ยงการดำเนินงาน (Operational Risk Protection)					
1. กิจการมีการดำเนินงานได้อย่างราบรื่นและเป็นไปตามเป้าหมาย ปราศจากปัญหาและอุปสรรคมาขัดขวาง					
2. กิจการมีความสามารถในการลดโอกาสที่เกิดข้อผิดพลาดในการปฏิบัติงานได้อย่างมีประสิทธิภาพ					
3. กิจการมีการกระจายและลดทอนความเสี่ยงในการดำเนินงานให้อยู่ในระดับที่ยอมรับได้					
4. กิจการมีศักยภาพในการดำเนินงานโดยสามารถหลีกเลี่ยงความไม่แน่นอนและความสูญเสียที่อาจจะเกิดขึ้นได้					
5. กิจการมีการเฝ้าติดตามระวังความผิดพลาดที่อาจมีผลต่อกิจการได้อย่างเป็นระบบ					

ตอนที่ 4 (ต่อ)

ผลการดำเนินงาน (Firm Performance)	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
ความน่าเชื่อถือของข้อมูลทางการเงิน (Financial Information Reliability) 6. กิจการมีข้อมูลทางการเงินที่เนื้อหาครบถ้วนตามมาตรฐานการบัญชีที่กำหนด					
7. กิจการมีข้อมูลเกี่ยวกับผลการดำเนินงานทั้งที่เป็นข้อมูลทางการเงินและไม่ใช่ทางการเงินที่แสดงให้เห็นถึงผลการดำเนินงานที่แท้จริงของกิจการ					
8. กิจการมีข้อมูลทางการเงินที่เป็นกลางปราศจากความลำเอียงและสามารถนำไปในการตัดสินใจได้อย่างทันเวลา					
9. กิจการมีข้อมูลทางการเงินที่สามารถนำไปเปรียบเทียบกับกิจการอื่นได้อย่างถูกต้องและมีความเหมาะสมมากยิ่งขึ้น					
การลดค่าใช้จ่ายในการดำเนินงานขององค์กร (Organization Expenditure Reduction) 10. กิจการมีค่าใช้จ่ายในการดำเนินงานในปัจจุบันต่ำกว่าในอดีตอย่างเห็นได้ชัด					
11. กิจการมีการดำเนินงานที่เหนือกว่ามาตรฐาน ซึ่งมีค่าใช้จ่ายอยู่ในเกณฑ์ที่กำหนด					
12. กิจการมีการใช้ทรัพยากรในการปฏิบัติงานอย่างประหยัดและคุ้มค่า					
13. กิจการมีการปฏิบัติตามกลยุทธ์ของกิจการให้สำเร็จลุล่วงโดยมีต้นทุนที่ต่ำ					
การบรรลุผลสำเร็จตามเป้าหมาย (Goal Achievement) 14. กิจการมีการเติบโตด้านสินทรัพย์ ยอดขายและกำไรเป็นไปตามเป้าหมายของกิจการอย่างมีประสิทธิภาพ					
15. กิจการมีผลการดำเนินงานที่เพิ่มขึ้นอย่างต่อเนื่อง เมื่อเทียบกับผลการดำเนินงานที่ผ่านมา					
16. กิจการมีส่วนแบ่งการตลาดเพิ่มขึ้นอย่างต่อเนื่องจากอดีตถึงปัจจุบัน					
17. กิจการมีอัตราการเติบโตของยอดขายที่ดีกว่าคู่แข่ง					

<u>ตอนที่ 4</u> (ต่อ)

ผลการดำเนินงาน (Firm Performance)	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
มูลค่าขององค์กร (Firm Value) 18. กิจการมีชื่อเสียงและเป็นที่รู้จักถึงความสามารถในการดำเนินกิจการที่มีประสิทธิภาพ					
19. กิจการสามารถจัดระบบการบริหารงานได้อย่างมืออาชีพ					
20. กิจการมีการกำกับดูแลกิจการที่ดี และเป็นที่ยอมรับจากบุคคลภายนอกว่ากระบวนการทำงานและการนำเสนอข้อมูลที่โปร่งใสและเชื่อถือได้					
21. กิจการมีความสามารถและศักยภาพในการรักษาการเติบโตของธุรกิจและอยู่รอดได้อนาคตแม้จะมีอุปสรรคหรือวิกฤตการณ์ใดๆ					

<u>ตอนที่ 5</u>ความคิดเห็นเกี่ยวกับปัจจัยภายในที่มีผลต่อการมุ่งเน้นความฉลาดทางการตรวจสอบภายในของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

ปัจจัยภายในที่มีผลต่อการมุ่งเน้นความฉลาดทางการตรวจสอบภายใน (Internal Environmental Factor)	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
วิสัยทัศน์ที่มุ่งเน้นความยั่งยืนขององค์กร (Corporate Sustainability Vision) 1. กิจการเชื่อมั่นว่าการกำหนดแนวทาง ทิศทางและนโยบายที่มุ่งเน้นเป้าหมายการอยู่รอดและการเติบโตในระยะยาว จะทำให้การดำเนินงานขององค์กรบรรลุเป้าหมายได้ดียิ่งขึ้น					
2. กิจการส่งเสริมให้บุคลากรมีส่วนร่วมในการกำหนดวิสัยทัศน์ขององค์กรร่วมกัน ซึ่งจะช่วยสร้างเป้าหมายขององค์กรได้รอบด้านดียิ่งขึ้น					
3. กิจการสนับสนุนให้มีการวิจัยและพัฒนาผลิตภัณฑ์และการบริหารอย่างเป็นระบบและรูปธรรม ซึ่งจะช่วยเพิ่มคุณภาพและประสิทธิภาพของการดำเนินงาน ให้สามารถแข่งขันในตลาดได้					

ตอนที่ 5(ต่อ)

ปัจจัยภายในที่มีผลต่อการมุ่งเน้นความฉลาดทางการตรวจสอบภายใน (Internal Environmental Factor)	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
วิสัยทัศน์ที่มุ่งเน้นความยั่งยืนขององค์กร (Corporate Sustainability Vision) 4. กิจการส่งเสริมให้มีการประยุกต์ใช้เทคโนโลยีที่ทันสมัยและรวดเร็วในการบริหารงานอย่างเป็นระบบ ซึ่งจะช่วยให้การดำเนินงานประสบความสำเร็จ					
การสนับสนุนจากฝ่ายบริหาร (Top Management Support) 5. ผู้บริหารสนับสนุนทรัพยากรที่จำเป็นงบประมาณและสิ่งอำนวยความสะดวกอื่นๆ อย่างเต็มที่ในการดำเนินงาน ซึ่งจะช่วยการดำเนินงานมีประสิทธิภาพมากยิ่งขึ้น					
6. ผู้บริหารส่งเสริมให้บุคลากรมีการเรียนรู้และฝึกอบรมเทคนิคและวิธีการดำเนินงานใหม่ๆ อยู่เสมอ ซึ่งจะช่วยให้เพิ่มประสิทธิภาพ ความสามารถและศักยภาพการแข่งขันได้ดียิ่งขึ้น					
7. ผู้บริหารให้ความสำคัญกับการพัฒนาระบบการบริหารจัดการที่ดีอย่างต่อเนื่อง ซึ่งช่วยให้กิจการสามารถดำเนินงานภายใต้สถานการณ์ต่างๆ ได้เป็นอย่างดี					
8. ผู้บริหารมุ่งเน้นให้มีการประยุกต์ใช้เทคนิคและวิธีการใหม่ๆ ในการดำเนินงานอยู่เสมอ จะช่วยให้ได้ข้อมูลที่เป็นประโยชน์ในการตัดสินใจเพิ่มมากขึ้น					
ระบบบัญชีที่ดี (Best Accounting System) 9. กิจการเชื่อมั่นว่าการมีระบบบัญชีที่ดี จะช่วยให้การปฏิบัติทางการบัญชีมีประสิทธิภาพมากขึ้น					
10. กิจการมีการเชื่อมโยงรายการทางการบัญชีอย่างระบบ ซึ่งจะช่วยให้ข้อมูลทางการบัญชีถูกต้อง ครบถ้วนและทันเวลา					
11. กิจการมุ่งเน้นให้มีการเชื่อมโยงระบบบัญชีและระบบการบริหารจัดการอื่นๆ เข้าด้วยกัน จะช่วยให้สามารถบูรณาการข้อมูลอย่างเป็นระบบ สามารถนำไปใช้ในการตัดสินใจได้อย่างมีประสิทธิภาพ					

<u>ตอนที่ 5</u> (ต่อ)

ปัจจัยภายในที่มีผลต่อการมุ่งเน้นความฉลาดทางการตรวจสอบภายใน (Internal Environmental Factor)	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
ระบบบัญชีที่ดี (Best Accounting System) 12. กิจการสนับสนุนให้มีการปรับปรุงและพัฒนาระบบบัญชีอย่างต่อเนื่อง จะช่วยให้ได้ข้อมูลที่ทันสมัยและสอดคล้องกับสภาพจริงได้อย่างเป็นรูปธรรม					
วัฒนธรรมการกำกับดูแลกิจการ (Governance Culture) 13. กิจการเชื่อมั่นว่าการมีวัฒนธรรมองค์กรที่มุ่งเน้นหลักธรรมาภิบาลจะช่วยให้การดำเนินงานประสบความสำเร็จ					
14. กิจการยึดมั่นในการบริหารงานภายใต้กฎระเบียบโดยสร้างมูลค่าเพิ่มให้กับผู้มีส่วนได้เสียทุกฝ่ายรวมทั้งคำนึงถึงความรับผิดชอบต่อชุมชนและสังคมโดยรวม จะช่วยให้การดำเนินงานมีประสิทธิภาพเพิ่มขึ้น					
15. กิจการมุ่งเน้นให้มีการดำเนินงานที่มีความโปร่งใส จะทำให้การดำเนินงานบรรลุเป้าหมาย และช่วยสร้างความเชื่อถือต่อผู้มีส่วนได้เสียได้มากขึ้น					
16. กิจการส่งเสริมให้บุคลากรภายในองค์กรปฏิบัติงานภายใต้หลักคุณธรรมและความถูกต้องรวมถึงมีความซื่อสัตย์จะช่วยให้กิจการสามารถดำรงอยู่ต่อไปได้ทั้งในปัจจุบันและอนาคต					

<u>ตอนที่ 6</u>ความคิดเห็นเกี่ยวกับปัจจัยภายนอกที่มีผลต่อการมุ่งเน้นความฉลาดทางการตรวจสอบภายในของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

ปัจจัยภายนอกที่มีผลต่อการมุ่งเน้นความฉลาดทางการตรวจสอบภายใน (External Environmental Factor)	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
การยอมรับเทคโนโลยี (Technology Acceptance) 1. ในปัจจุบันเทคโนโลยีมีการเปลี่ยนแปลงอย่างรวดเร็ว ทำให้กิจการต่างๆ ต้องศึกษาเรียนรู้และทำความเข้าใจเทคโนโลยีให้มากขึ้น เพื่อให้สามารถประยุกต์ใช้ทำให้ประสิทธิภาพการทำงานให้สูงขึ้น					

ตอนที่ 6(ต่อ)

ปัจจัยภายนอกที่มีผลต่อการมุ่งเน้นความฉลาดทางการตรวจสอบภายใน (External Environmental Factor)	ระดับความคิดเห็น				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
การยอมรับเทคโนโลยี (Technology Acceptance) 2. เทคโนโลยีมีการพัฒนาอย่างต่อเนื่อง ทำให้กิจการต่างๆ ต้องพยายามที่จะแสวงหาและวิเคราะห์ถึงคุณสมบัติและความสามารถที่ได้จากเทคโนโลยีใหม่ๆ เพื่อนำมาใช้ในการเพิ่มศักยภาพในการดำเนินงานของกิจการ					
3. เทคโนโลยีที่มีความหลากหลาย ทำให้กิจการต่างๆ ต้องมีการเลือกใช้เทคโนโลยีมาประยุกต์ใช้ให้สอดคล้องและเหมาะสมกับการดำเนินงานของกิจการ					
4. เทคโนโลยีที่ในปัจจุบันมีความทันสมัยมากยิ่งขึ้น ทำให้กิจการต่างๆ สามารถเข้าถึงได้อย่างง่ายดาย ซึ่งจะช่วยให้กิจการต่างๆ สามารถนำมาพัฒนากระบวนการทำงานให้เกิดประสิทธิภาพและประสิทธิผลได้ดียิ่งขึ้น					
ความวุ่นวายของสภาพแวดล้อม (Environmental Turbulence) 5. ในปัจจุบันสภาพแวดล้อมทางธุรกิจมีความผันผวนมากขึ้น ทำให้กิจการต่างๆต้องเรียนรู้และทำความเข้าใจ เพื่อที่จะสามารถดำเนินงานให้สอดคล้องกับสถานการณ์ที่เกิดขึ้น					
6. ลูกค้าในปัจจุบันมีความต้องการที่หลากหลายมาขึ้น ทำให้กิจการต่างๆ ต้องมุ่งเน้นในการศึกษาทำความเข้าใจ เพื่อให้สามารถตอบสนองต่อความต้องการของลูกค้าได้ดีมากขึ้น					
7. คู่แข่งขันรายใหม่ในอุตสาหกรรมเดียวกันเกิดขึ้นเป็นจำนวนมาก ทำให้กิจการต่างๆ ต้องพยายามปรับปรุงอย่างต่อเนื่องในทุกๆ ด้าน เพื่อให้กิจการสามารถอยู่รอดได้ในระยะยาว					
8. ในปัจจุบันหน่วยงานกำกับดูแลต่างๆ ได้มีการออกกฎระเบียบ ข้อบังคับที่เกี่ยวข้องกับการดำเนินกิจการมากยิ่งขึ้น ทำให้กิจการต่างๆ ให้ความสำคัญกับการบริหารงานให้เป็นไปตามมาตรฐานและแนวปฏิบัติงานมากยิ่งขึ้น					

<u>ตอนที่ 7</u> ข้อคิดเห็นและข้อเสนอแนะอื่นๆ ที่เกี่ยวข้องกับการตรวจสอบภายในของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

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ขอขอบพระคุณท่านที่ได้สละเวลาตอบแบบสอบถามทุกข้อ
และได้โปรดพับแบบสอบถามใส่ซองที่แนบมาพร้อมนี้ ส่งคืนตามที่อยู่ที่ระบุไว้

APPENDIX H

Letters to Experts

สำเนา

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 นางสาวสาธิยา กลิ่นสุคนธ์ นิสิตระดับปริญญาเอก หลักสูตรปรัชญาดุษฎีบัณฑิต (ปร.ด.) สาขาวิชาการบัญชี คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม กำลังศึกษาวิทยานิพนธ์ เรื่อง "การมุ่งเน้นความฉลาดทางการตรวจสอบภายในและมูลค่าขององค์กร : การตรวจสอบเชิงประจักษ์ของบริษัทจดทะเบียนในตลาดหลักทรัพย์" ซึ่งเป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปรัชญาดุษฎีบัณฑิต ดังนั้น เพื่อให้การดำเนินการเป็นไปด้วยความเรียบร้อยและบรรลุตามวัตถุประสงค์ คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม จึงใคร่ขอความอนุเคราะห์ท่านเป็นผู้เชี่ยวชาญตรวจสอบเครื่องมือวิจัยและข้อเสนอแนะเพื่อนำข้อมูลที่ได้ไปดำเนินการทำวิทยานิพนธ์ต่อไป ตามเอกสารแนบท้าย

จึงเรียนมาเพื่อโปรดพิจารณา

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สำเนา

บันทึกข้อความ

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RESEARCH

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