

**การมุ่งเน้นความฉลาดทางการตรวจสอบภายในและมูลค่าขององค์กร:
การตรวจสอบเชิงประจักษ์ของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย**

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

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาความสัมพันธ์ระหว่างการมุ่งเน้นความฉลาดทางการตรวจสอบภายในกับมูลค่าขององค์กร ด้วยการใช้การถดถอยแบบวิธีกำลังสองน้อยที่สุด กลุ่มตัวอย่างที่ใช้ศึกษา คือ บริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทยจำนวน 134 แห่ง ตัวแปรอิสระคือ การมุ่งเน้นความฉลาดทางการตรวจสอบภายใน ซึ่งประกอบด้วย การวางแผนการตรวจสอบภายในแบบพลวัต, การบูรณาการวิธีการตรวจสอบภายใน, การประยุกต์ใช้เทคโนโลยีในการตรวจสอบภายใน, การมุ่งเน้นนวัตกรรมการตรวจสอบภายใน และความสามารถในการใช้วิจารณญาณในการตรวจสอบภายใน ผลการวิจัยพบว่า การมุ่งเน้นนวัตกรรมการตรวจสอบภายในมีอิทธิพลทางบวกอย่างมากกับผลการดำเนินงานด้านการตรวจสอบภายใน การวางแผนการตรวจสอบภายในแบบพลวัตมีอิทธิพลทางบวกต่อความน่าเชื่อถือของข้อมูลทางการเงินและมูลค่าขององค์กร การบูรณาการวิธีการตรวจสอบภายในมีอิทธิพลทางบวกต่อการป้องกันความเสี่ยงการดำเนินงาน, ความน่าเชื่อถือของข้อมูลทางการเงินและมูลค่าขององค์กร นอกจากนี้การประยุกต์ใช้เทคโนโลยีในการตรวจสอบภายในและความสามารถในการใช้วิจารณญาณในการตรวจสอบภายในยังมีอิทธิพลทางบวกต่อการป้องกันความเสี่ยงการดำเนินงานและการลดค่าใช้จ่ายในการดำเนินงานขององค์กรด้วย นอกจากนี้การป้องกันความเสี่ยงการดำเนินงาน, ความน่าเชื่อถือของข้อมูลทางการเงิน, การลดค่าใช้จ่ายในการดำเนินงานขององค์กรมีผลกระทบต่ออย่างมีนัยสำคัญต่อมูลค่าขององค์กร

คำสำคัญ: การมุ่งเน้นความฉลาดทางการตรวจสอบภายใน การป้องกันความเสี่ยงการดำเนินงาน

ความน่าเชื่อถือของข้อมูลทางการเงิน การลดค่าใช้จ่ายในการดำเนินงานขององค์กร มูลค่าขององค์กร

Abstract

This study aims to investigate the relationship of internal audit intelligence orientation and internal audit outcomes. Hypotheses testing by Ordinary Least Squares (OLS) regression analysis. The data were collected by using questionnaires from 134 listed firms in Thailand. The independent variable is internal audit intelligence orientation, 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. 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 firm value. In the same vein, internal audit method integration has a positively significant effect on operational risk protection, financial information reliability, and firm value. Furthermore, technology-based internal audit and internal audit skepticism competency have a positively significant effect on operational risk protection and

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organizational expenditure reduction. In addition, operational risk protection, financial information reliability, and organizational expenditure reduction have a positively significant effect on firm value.

Keywords: Internal audit intelligence orientation, Operational risk protection, Financial information reliability, Organizational expenditure reduction, Firm value

Introduction

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, & Martinov-Bennie, 2011). Good corporate governances entail transparency in performance and enhance the credibility of organization. The corporate governance reforms in many countries now increase the importance of internal audit function, and improves the transparency and quality of financial reports (Berhe, Ali, & Mihret, 2014). Hence, internal audit plays an important role in an organization's transparency as an important monitoring mechanism in corporate governance.

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, depending on organizational intelligence (Khanghahi, & 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).

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 in 1999, The Securities and Exchange Commission (SEC) of Thailand designed reform efforts for corporate governance. 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, the much priors study in internal audit focuses on the characteristics of the internal auditor (Hanim Fadzil, Haron, & 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, Wansbeek, & Dam, 2017). Meanwhile, some study does not find any relationship between the internal audit function (corporate governance score) and various measures of the firm value (Gupta, Kennedy, & Weaver, 2009). Thus, create intelligence for internal audit in improve organizational efficiency and effectiveness influence on firm value. This study aims to investigate the relationship between internal audit intelligence orientation and firm value in the context of Thailand.

Literature review

In this study, internal audit intelligence orientation is the main variable and the center of the framework, which provide empirical evidence so that internal audit intelligence orientation may enhance firm value and the consequences of internal audit intelligence orientation. The resource-advantage theory is 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 firm value.

The resource-advantage theory is 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 (Hunt, & Morgan, 1997). Resources are divided into tangible and intangible assets available to the firm that is able to efficiently and effectively produce a market offering that has value (Hunt and Madhavaram, 2006). The internal audit intelligence orientation of the internal audit department is an 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.

Internal Audit Intelligence Orientation

Internal audit intelligence orientation comes from two parts, including organizational intelligence and the internal audit process (Institute of Internal Auditors, 2015). Firstly, organizational intelligence is the talent and potentiality of an organization to create knowledge, apply strategies to adapt to the environment including use technology, which organizational intelligence to provide useful information to the decision, make the operation effective and organization goal achievement. Secondly, the Institute of Internal Auditors (IIA), (2014) 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. 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). **In summary, this study 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.

This study incorporates prior research for new dimensions of internal audit intelligence, which classifies them into three groups including people, process, and technology (Burton, 2007; Sacu, & Apruit, 2010). 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 are five dimensions examined in relation to internal audit intelligence orientation. These include dynamic internal audit planning, internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency. Therefore, Figure 1 presents the relationships among internal audit intelligence orientation and its consequences.

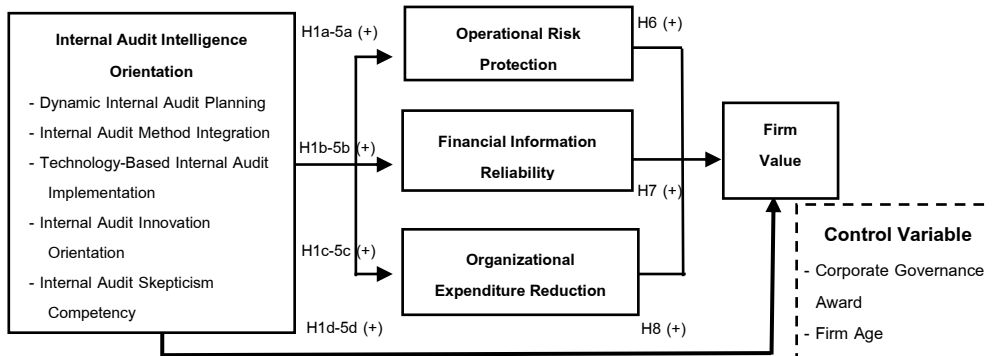


Figure 1: A Conceptual Model of Internal Audit Intelligence Orientation and Its Consequences

1. 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 adaptable to business environmental change (Grant, 2003; Wiltbank, Dew, Read, & Sarasvathy, 2006). A formal strategic planning process is considered to be positively related to firm performance (Schwenk, & Shrader, 1993), evidence suggests that the effectiveness of strategic planning declines when environmental uncertainty increases as the perceived value of strategic planning decrease in kind (Dibrell, Craig, & Neubaum, 2014). The 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, & McCarthy, 2009). The quality of the audit plan that can help one to understand the significance of the integrating process (Cohen, Krishnamoorthy, & Wright, 2008) is more likely to improve the management of risk, improve the operation of businesses, and add value (Curtis, & Payne, 2008; Elliott, Dawson, & Edwards, 2007). Therefore, the research hypothesis is as follows:

H1: Dynamic internal audit planning has a positive influence on a) operational risk protection, b) financial information reliability, c) organization expenditure reduction, and d) firm value.

2. 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 (Soh, & Martinov-Bennie, 2011). The prior study indicates that an integrated audit 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 (Lam, 2003). 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, & Nagaraja, 2012). Therefore, the research hypothesis is as follows:

H2: Internal audit method integration has a positive influence on a) operational risk protection, b) financial information reliability, c) organization expenditure reduction, and d) firm value.

3. 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 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 (Braun, & Davis, 2003). Prior study indicates that technology provides a great added value for internal auditing activity, and develops more accurate and complete data analysis (Bota-Avram, Popa, & Stefanescu, 2010). Moreover, computer-aided audit tools can help fraud detection, and increase the transparency of financial reports (Olasanmi, 2013). 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, & Leech, 2007). Therefore, the research hypothesis is as follows:

H3: Technology-based internal audit orientation has a positive influence on a) operational risk protection, b) financial information reliability, c) organization expenditure reduction, and d) firm value.

4. 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 (Sumritsakun, & Ussahawanitchakit, 2009). Prior study found that innovation has a positive relationship with freedom of information flow, rewards, training, creativity, and organizational effectiveness (Soh, & Martinov-Bennie, 2011). In addition, 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). Therefore, the research hypothesis is as follows:

H4: Internal audit innovation orientation has a positive influence on a) operational risk protection, b) financial information reliability, c) organization expenditure reduction, and d) firm value.

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 (Laohamethanee, & Ussahawanitchakit, 2012). The prior study found that 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, which found that a high emphasis on skepticism increases auditors' assessments of the likelihood of fraud (Carpenter, & Reimers, 2009). Therefore, the research hypothesis is as follows:

H5: Internal audit skepticism competency has a positive influence on a) operational risk protection, b) financial information reliability, c) organization expenditure reduction, and d) firm value.

The Relationships among the Consequences of Internal Audit Intelligence Orientation

This section examines the relationships among the consequences of internal audit intelligence orientation consisting of operational risk protection, financial information reliability, organization expenditure reduction, and firm value. The literature review on the definition of each construct and purposed hypotheses are discussed below.

1. 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 (Kleffner, Lee, & McGannon, 2003). Previous research shows that 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). Risk management can reduce earnings volatility, maximize value, and promote financial security in the organization (Lam, 2003), detection and prevention of errors and fraud which helps to achieve performance and profitability, and prevents loss of revenues (Vijayakumar, & Nagaraja, 2012). Therefore, the research hypothesis is as follows:

H6: Operational risk protection has a positive influence on firm value.

2. Financial Information Reliability refers 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 (IASB, 2009). The prior study found that the efficacy of internal audit influences operational performance via information reliability, operational effectiveness, efficiency, and legal compliance (Hoitash, Hoitash, & Bedard, 2009). 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, & Beatty, 2010). Therefore, the research hypothesis is as follows:

H7: Financial information reliability has a positive influence on firm value.

3. Organizational Expenditure Reduction is defined as an operational outcome that incurs costs during the operation of business that is lower than planned. 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, Mat Zain, & James, 2011). 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, & 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). Therefore, the research hypothesis is as follows:

H8: Organizational expenditure reduction has a positive influence on firm value.

Research Methodology

Sample Selection and Data Collection

The population and sample of this research are all 594 Thai-listed firms on the Stock Exchange of Thailand (SET) as of March 31, 2017. This study chooses Thai-listed firms 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). A mail survey procedure via questionnaire was implemented by using internal audit executive, internal audit director or internal audit manager as the key informants. The questionnaire was developed from existing literatures of accounting, internal auditing and related fields. 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 answered from outsourced internal audit function, which it's not a 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, & Day (2008) 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. Likewise, this study verified potential and non-response bias by centering on a comparison of the first and the second wave data, such as firm experience and firm employee as recommended by Armstrong, & Overton (1977). Our final samples of the study are 134 listed firms in Thailand. Accordingly, the first and the second wave data is 103 and 31 respectively. There were no statistically significant differences between first and second groups at a 95% confidence level as firm capital ($t = -0.929, p > 0.05$), total assets ($t = -0.118, p > 0.05$), firm period operation in SET ($t = -0.547, p > 0.05$), and CG scoring ($t = -0.127, p > 0.05$). According to this regard, neither procedure explicitly showed significant differences.

Variable Measurement

All constructs were measured using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), excluding control variables. In addition, all constructs are developed for measuring from the definition of each construct and examine the relationship from theoretical framework and prior literature reviews. Hence, the variable measurements of this study are described as follows:

Dynamic internal audit planning is measured by 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. This construct is developed as a new scale from the definition and literature, including a five-item scale.

Internal audit method integration is measured by a firm to interconnect knowledge, skill, experience, various method, and audit risk procedure for internal audit activity. This construct is developed as a new scale from the definition and literature, including a five-item scale.

Technology-based internal audit implementation is measured by a 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. This construct is developed as a new scale from the definition and literature, including a four-item scale.

Internal audit innovation orientation is measured by a firm to practical application new method or technique about risk assessment, internal control and consulting to management for increasing the efficiency and effectiveness of internal audit activity and participative of internal audit team. This construct is developed from Sumritsakun, & Ussahawanitchakit (2009), including a four -item scale.

Internal audit skepticism competency is measured by 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. This construct is developed from Laohamethanee, & Ussahawanitchakit (2012), including a four-item scale.

Operational risk protection is measured by firm to reduce or control the likelihood of an error, risk diversification, avoid uncertainty, and mistake monitoring. This construct is developed from Kleffner, Lee, & McGannon (2003), the definition and literature, including a five-item scale.

Financial information reliability is measured by neutral, complete and accurate of information, understanding of actual economic and comparability. This construct is developed from IASB (2009), the definition and literature, including a four-item scale.

Organization expenditure reduction is measured by firm to reduce operation expenditure, and operation expenditure less than prior period. This construct is developed from Gona, Mutero, & Mazani (2014), the definition and literature, including a four-item scale.

Firm value is measured by firm's financial and non-financial performance such as sale growth, market share, net profit stakeholder, firm acceptance, firm image, and firm reputation. This construct is developed from Laohamethanee, & Ussahawanitchakit (2013) and Sahayrak, & Ussahawanitchakit (2015), including a six-item scale.

TABLE 1: Result of Measure Validation

Variables	Factor Loadings	Cronbach's Alpha
Dynamic Internal Audit Planning (DIAP)	.691 - .887	.820
Internal Audit Method Integration (IAM)	.701 - .879	.862
Technology-based Internal Audit Implementation (TIAI)	.790 - .913	.863
Internal Audit Innovation Orientation (IAIO)	.902 - .961	.949
Internal Audit Skepticism Competency (IASC)	.688 - .938	.882
Operational Risk Protection (ORP)	.739 - .877	.869
Financial Information Reliability (FIR)	.866 - .940	.914
Organization Expenditure Reduction (OER)	.772 - .902	.846
Firm Value (FIV)	.749 - .850	.931

The results of measure validation and reliability illustrated in Table 1. The value of factor loadings of each construct are 0.688 to 0.961, and are greater than 0.4, which indicates acceptable construct validity (Hair, Babin, & Anderson, 2010). Moreover, the Cronbach's alpha for all variables are shown between 0.820 to 0.949, which exceeds 0.70, to indicate high reliability.

Data analysis

The ordinary least squares regression (OLS) is used to test all hypotheses following the conceptual framework. It is an appropriate technique for examining the hypothesized relationships (Hair, Babin, & Anderson, 2010). Regression was selected for three reasons. First, with the help of ordinary least squares regression, this research can determine to what extent a part of the total variation of the dependent variable is influenced by the variation of the independent variables. Second, alternative approaches such as structural equation modeling (SEM) were unnecessary given that variables were discrete and clearly defined (Sangboonnak, & Prasertsri, 2017). Third,

structural equation modeling requires large samples in general, in which the ratio between the 5 or 10 samples per estimated parameter. The limitation is that sample size of this research is small in term of SEM standards.

Results

Descriptive statistics and correlation matrix

The descriptive statistics and correlation matrix for variables are provided as shown in Table 2. To verify the multicollinearity problems of the study, multicollinearity testing was done to examine the relationships among the independent variables. Multicollinearity exists when the independent variables are highly correlated (above 0.80) among themselves (Hair, Babin, & Anderson, 2010). All the independent variables show at least some relationship with the dependent variable, and the correlations between independent variables are less than 0.80. Similarly, multicollinearity could also be examined through the assessment of variance inflation factors (VIF). As shown in Table 4, the VIF values were 3.243, which is less than the recommended value of 10 (Hair, Babin, & Anderson, 2010). The results indicated that no issue of multicollinearity exists.

TABLE 2: Descriptive statistics and correlation matrix

Variable	DIAP	IAMI	TIAI	IAIO	IASC	ORP	FIR	OER	FIV
Mean	4.327	4.288	4.078	4.207	4.205	3.910	4.362	3.677	3.696
S.D.	.512	.557	.705	.636	.608	.505	.567	.624	.725
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	
FIV	.259**	.299**	.203	.292**	.371**	.607**	.634**	.579**	1.000

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

OLS regression analysis

The OLS regression analysis (Table 3 and 4) examined the proposed model.

Table 3 demonstrated the hypothesis testing results. Firstly, the results indicate that dynamic internal audit planning significantly and positively relates to financial information reliability ($\beta = .326$), and firm value ($\beta = .212$). In contrast, there are no significant effects of dynamic internal audit planning on operational risk protection ($\beta = .084$), and organizational expenditure reduction ($\beta = .042$). **Therefore, 1b, and 1d are supported, but 1a and 1c are not.**

Secondly, the results show that internal audit method integration significantly and positively relates to operational risk protection ($\beta = .203$), financial information reliability ($\beta = .240$), and firm value ($\beta = .264$). On the other hand, internal audit method integration has no significant relationship with organizational expenditure reduction ($\beta = .136$). **Therefore, 2a, 2b, and 2d are supported, but 2c is not.**

Thirdly, the results reveal that technology-based internal audit implementation has a significantly positive effect on operational risk protection ($\beta = .183$), and organizational expenditure reduction ($\beta = .375$). On the contrary, there are no significant effects of technology-based internal audit implementation on financial information reliability ($\beta = .160$), and firm value ($\beta = .125$). **Therefore, hypotheses 3a, and 3c are supported, but 3b, and 3d are not.**

Fourthly, the results demonstrate that internal audit innovation orientation has a significantly positive effect on all consequents, including operational risk protection ($\beta = .380$), financial information reliability ($\beta = .276$), organizational expenditure reduction ($\beta = .320$), and firm value ($\beta = .291$). **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 ($\beta = .232$), and organizational expenditure reduction ($\beta = .249$). However, internal audit skepticism competency has not significance for financial information reliability ($\beta = .146$), and firm value ($\beta = .068$). **Thus, hypotheses 5a, and 5c are supported, but 5b, and 5d are not supported.**

TABLE 3: Results of OLS regression analysis

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

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

Table 4 demonstrated the hypothesis testing results. The results indicate that operational risk protection, financial information reliability, and organizational expenditure reduction significantly and positively relates to firm value. **Thus, hypothesis 6, 7, and 8 are supported.**

TABLE 4: Results of OLS regression analysis

Independent Variables	Dependent Variables
	FIV
Operational Risk Protection (ORP) (H6)	.213 [*] (.098)
Financial Information Reliability (FIR) (H7)	.426 ^{**} (.060)
Organization Expenditure Reduction (OER) (H8)	.236 [*] (.097)
Corporate Governance Award (CGA)	.441 ^{**} (.117)
Firm Age (FAS)	.023 (.110)
Adjusted R ²	.603
Maximum VIF	3.243

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

Conclusion and Discussion

There are five factors examined in relation to internal audit intelligence orientation. These include dynamic internal audit planning, internal audit method integration, technology-based internal audit implementation, internal audit innovation orientation, and internal audit skepticism competency.

The result found that internal audit intelligence orientation influences firm value via operational risk protection, financial information reliability, and organization expenditure reduction. Results of OLS regression analysis can

explain 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.

Firstly, the results found that dynamic internal audit planning has a positive influence on financial information reliability and firm value. Consistent with prior research found that 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, & McCarthy, 2009). In contrast, there are no significant effects of dynamic internal audit planning on operational risk protection, and organizational expenditure reduction. According to prior research, Goodwin, & 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. Internal audit planning that is incomplete leads to a loss of internal audit activities to bear the risk of an organization (Vasile, & Popescu, 2011).

Secondly, internal audit method integration has a positive influence on operational risk protection, financial information reliability, and firm value. These empirical results are consistent with prior research found that integration auditing techniques and a strong system of internal audit are good for an organization in risk management through early detection and prevention of errors and fraud which help to achieve performance and maximize value (Lam, 2003; Vijayakumar, & Nagaraja, 2012). On the other hand, internal audit method integration has no significant relationship with organizational expenditure reduction. A review of the literature, from a complementary perspective, the presence of internal audit function signals a greater commitment by the firm to stronger corporate governance and a willingness to pay more for a higher quality external audit (Hay, Knechel, & Ling, 2008). Directors and audit committee members may choose to increase investment in both internal and external auditing, in order to protect their reputations (Knechel, & Willekens, 2006).

Thirdly, technology-based internal audit implementation has a significantly positive effect on operational risk protection, and organizational expenditure reduction. Prior research found that computer-aided audit tools can help fraud detection (Olasanmi, 2013) and reducing audit cost (Dowling, & Leech, 2007). On the contrary, there are no significant effects of technology-based internal audit implementation on financial information reliability, and firm value. 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 the less transparent practice of firms (Ismail, 2007). Besides, if audit software does not meet an 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, Mohamed, Gopalan, & San, L. H, 2011).

Fourthly, internal audit innovation orientation has a positive influence on all its consequents: operational risk protection, financial information reliability, organizational expenditure reduction, and firm value. Prior research found that organizations adjust innovation of internal audit mechanism according to internal audit systems, it will be able to ensure the reliability of financial information (Teru and Hla, 2015) and organizational effectiveness (Soh, & Martinow-Bennie, 2011).

Fifthly, internal audit skepticism competency has a positive influence on operational risk and organizational expenditure reduction. Consistent with prior research, Extending Nelson's model, high emphasis on skepticism increases auditors' assessments of the likelihood of fraud (Carpenter, & Reimers, 2009). However, internal audit skepticism competency has not significance for financial information reliability, and firm value. The prior studies of Fullerton, & 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, & 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, & Saren, 2011).

Finally, the results found that operational risk protection, financial information reliability, and organizational expenditure reduction have a positive influence on firm value. According to prior research, detection and prevention of operational risk which helps to achieve firm performance, an increase of shares value, the reputation protection and low levels of operational losses (Kipsang, 2014; Vijayakumar, & Nagaraja, 2012). Because the internal audit effectiveness influences operational performance via information reliability (Hoitash, Hoitash, & Bedard, 2009). The prior studies of Oates (2011) found that organizations that approach cost reduction have a better chance of success than those which simply tamper on the periphery.

Limitation of this research, 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. Secondly, this research used questionnaires to collect the data and explore through a cross-sectional survey. Therefore, future 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.

Suggestion

Theoretical Contribution

This research exposed the resource-advantage theory 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 consists 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, and firm value, as suggested by the resource-advantage theory. Results were supportive of this perspective, each dimension of the internal audit intelligence orientation positively impacted the internal audit outcome.

Managerial Contributions

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

References

- Aaker, D. A., Kumar, V., and Day, G. S. (2008). *Marketing research*. John Wiley, & Sons.
- Altamuro, J., and Beatty, A. (2010). How does internal control regulation affect financial reporting?. *Journal of accounting and Economics*, 49(1), 58-74.
- Al-Laith, A. A. G. (2012). Adaptation of the Internal Control Systems with the Use of Information Technology and its Effects on the financial Statements Reliability: an applied study on commercial banks. *International Management Review*, 8(1), 12.
- Anderson, U. L., Christ, M. H., Johnstone, K. M., and Rittenberg, L. E. (2012). A post-SOX examination of factors associated with the size of internal audit functions. *Accounting Horizons*, 26(2), 167-191.
- Armstrong, J.S. and Overton, T.S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, 14(3), 396-402.
- Asian Confederation of Institutes of Internal Audit. (2015). *ACIIA Advocacy Project Asian Stock Exchange Perspectives on Internal Audit*.
- Aswadi Abdul Wahab, E., Mat Zain, M., & James, K. (2011). Political connections, corporate governance and audit fees in Malaysia. *Managerial Auditing Journal*, 26(5), 393-418.
- Batchelor, S., & McCarthy, B. (2009). In uncertain times, businesses need dynamic planning to chart course to high performance.
- Berhe, A. G., Ali, M. S., & Mihret, A. G. (2014). The role of internal audit on transparency and financial reporting quality: external auditors' perspective. *International Journal of Current Research*, 6(11), 10307-10311.
- Bota-Avram, C., Popa, I. and Stefanescu, C. (2010). Methods of Measuring the Performance of Internal Audit. *The Annals of the Stefan Cel Mare (University of Suceava)*, 10, 137-146.
- Braun, R. L., and Davis, H. E. (2003). Computer-assisted audit tools and techniques: Analysis and perspectives. *Managerial Auditing Journal*, 18(9), 725-731.
- Burton, B. (2007), Toolkit: Maturity Checklist for Business Intelligence and Performance Management, Gartner Inc. Research viewed 21 February 2009, <http://www.gartner.com>
- Carpenter, T., & Reimers, J. L. (2009). Professional skepticism: the effects of a partner's influence and the presence of fraud on auditors' fraud judgments and actions.
- Cohen, J. R., Krishnamoorthy, G., & Wright, A. M. (2008). Form versus substance: The implications for auditing practice and research of alternative perspectives on corporate governance. *Auditing: A Journal of Practice and Theory*, 27(2), 181-198.
- Curtis, M. B., & Payne, E. A. (2008). An examination of contextual factors and individual characteristics affecting technology implementation decisions in auditing. *International Journal of Accounting Information Systems*, 9(2), 104-121.
- Dibrell, C., Craig, J. B., and Neubaum, D. O. (2014). Linking the formal strategic planning process, planning flexibility, and innovativeness to firm performance. *Journal of Business Research*, 67(9), 2000-2007.
- Dowling, C., & Leech, S. (2007). Audit support systems and decision aids: Current practice and opportunities for future research. *International Journal of Accounting Information Systems*, 8(2), 92-116.
- Elliott, M., Dawson, R., & Edwards, J. (2007). An improved process model for internal auditing. *Managerial Auditing Journal*, 22(6), 552-565.
- Fullerton, R. R., & C. Durtschi. (2005). The effect of professional skepticism on the fraud detection skills of internal auditors. Working paper, Utah State University

- Gona, S., Mutero, S., and Mazani, B. (2014). Costs and Benefits of an Internal Audit Department: A Case Study of the Zimbabwean Banking Sector. *International Journal of Innovative Research and Development* | ISSN 2278-0211, 3(13).
- Goodwin, J., & Kent, P. (2006). Relation between external audit fees, audit committee characteristics and internal audit. *Accounting and Finance*, 46(3), 387-404.
- Grant, R. M. (2003). Strategic planning in a turbulent environment: Evidence from the oil majors. *Strategic management journal*, 24(6), 491-517.
- Gupta, P. P., Kennedy, D. B., & Weaver, S. C. (2009). Corporate Governance and Firm Value: Evidence from Canadian Capital Markets. *Corporate Ownership, & Control*, 6(3), 293-307.
- Hanim Fadzil, F., Haron, H., & Jantan, M. (2005). Internal auditing practices and internal control system. *Managerial Auditing Journal*, 20(8), 844-866.
- Hair, Jr.J.F., Babin, B.J., and Anderson, R.E. (2010). *Multivariate data analysis: A Global Perspective* 7th Ed.
- Hay, D., Knechel, W. R., & Ling, H. (2008). Evidence on the impact of internal control and corporate governance on audit fees. *International Journal of Auditing*, 12(1), 9-24.
- Hoitash, U., Hoitash, R., & Bedard, J. C. (2009). Corporate governance and internal control over financial reporting: A comparison of regulatory regimes. *The accounting review*, 84(3), 839-867.
- Hunt, S. D., and Madhavaram, S. (2006). Teaching marketing strategy: Using resource-advantage theory as an integrative theoretical foundation. *Journal of Marketing Education*, 28(2), 93-105.
- Hunt, S. D., and Morgan, R. M. (1997). Resource-advantage theory: a snake swallowing its tail or a general theory of competition?. *The Journal of Marketing*, 74-82.
- Institute of Internal Auditors. (2015). 2015 global pulse of internal audit report. GLOBAL HEADQUARTERS.
- Ismail, N. A. (2007). The impact of information technology on performance: The mediating role of management accounting systems. *Sains Humanika*, 46(1).
- Khanghahi, M. E., & Jafari, P. (2013). A Model for Organizational Intelligence in Islamic Azad University (Zone 8). *Mathematics Education Trends and Research*, 2013.
- Kipsang, B. J. (2014). Operation Risks Management and Wheat Farming Productivity in Narok North Constituency. *Unpublished MBA project, University of Nairobi*.
- Kleffner, A. E., Lee, R. B., and McGannon, B. (2003). The effect of corporate governance on the use of enterprise risk management: Evidence from Canada. *Risk Management and Insurance Review*, 6(1), 53-73.
- Knechel, W. R., and Willekens, M. (2006). The role of risk management and governance in determining audit demand. *Journal of Business Finance and Accounting*, 33(9-10), 1344-1367.
- Lam, J. (2003). Ten predictions for risk management. *Rma Journal*, 85(8), 84-87.
- Laohamethanee, W., & Ussahawanitchakit, P. (2012). Audit professional skepticism: an empirical investigation of certified public accounting (CPAs) in Thailand. *Journal of International Management Studies*, 12(4).
- Lenz, R., & Sarens, G. (2012). Reflections on the internal auditing profession: what might have gone wrong?. *Managerial Auditing Journal*, 27(6), 532-549.
- Moorthy, M. K., Mohamed, A. S. Z., Gopalan, M., & San, L. H. (2011). The impact of information technology on internal auditing. *African Journal of Business Management*, 5(9), 3523.
- Oates, V. (2011).** How the internal audit function can play a key role in cost reduction efforts. *EY's Performance journal*. 1(4). 4-12
- Olasanmi, O. O. (2013). Computer aided audit techniques and fraud detection. *Research Journal of Finance and Accounting*, 4(5), 67-79.
- Sacu, C., & Spruit, M. R. (2010). BIDM-The Business Intelligence Development Model. In *ICEIS (1)*. 288-293.

- Sahayrak, K. , & Ussahawanitchakit P. (2015) Effects of internal audit independence on firm performance of food export firms in Thailand. *International Journal of Business Strategy*, 13(3), 75.
- Sangboonnak, R., & Prasertsri, W. (2017). Corporate governance structures and stock returns: evidence from the stock exchange of Thailand. *Srinakharinwirot Business Journal*, 8(1), 125-139.
- Schwenk, C. R., and Shrader, C. B. (1993). Effects of formal strategic planning on financial performance in small firms: A meta-analysis. *Entrepreneurship: Theory and Practice*, 17(3), 53-65.
- Soh, D. S. , & Martinov-Bennie, N. (2011). The internal audit function: Perceptions of internal audit roles, effectiveness and evaluation. *Managerial Auditing Journal*, 26(7), 605-622.
- Sumritsakun, C., & Ussahawanitchakit, P. (2009). Internal audit innovation and firm stability of Thai listed company: How do implement in an organization. *Journal of Academy of Business and Economics*, 9(4), 1-23.
- Tengamnuay, K., & Stapleton, P. (2009). The role of the audit committee in Thailand: a mature monitoring mechanism or an evolving process?. *Journal of Management, & Governance*, 13(3), 131-161.
- Teru, S. P. , & Hla, D. T. (2015) . Appraisal of Accounting Information System and Internal Control Frameworks. *International Journal of Scientific and Research Publications*.
- Vasile, E. , & Popescu, M. (2011) . Internal Auditing Value Added Concept. *Internal Auditing and Risk Management*, 30(2 (22)), 57-64.
- Vijayakumar, A. N., & Nagaraja, N. (2012). Internal Control Systems: Effectiveness of Internal Audit in Risk Management at Public Sector Enterprises. *BVIMR Management Edge*, 5(1).
- Wessels, R. E., Wansbeek, T., & Dam, L. (2017). What is the Relation (if any) Between a Firm's Corporate Governance Arrangements and its Financial Performance?.
- Wiltbank, R., Dew, N., Read, S., & Sarasvathy, S. D. (2006). What to do next? The case for non-predictive strategy. *Strategic management journal*, 27(10), 981-998.