

ผลกระทบของศักยภาพการตรวจสอบภายในที่มีต่อประสิทธิภาพการบริหารความเสี่ยงและการเป็นที่ยอมรับจากลูกค้าของอุตสาหกรรมเคมีภัณฑ์ในประเทศไทย

## **Internal audit competency of Firms within Chemical products of Thailand: Impacts on Risk management efficiency and Client acceptance**

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### **บทคัดย่อ**

การวิจัยครั้งนี้มีวัตถุประสงค์ เพื่อทดสอบผลกระทบของศักยภาพการตรวจสอบภายในที่มีต่อการเป็นที่ยอมรับจากลูกค้า ภายใต้เงื่อนไขที่กำหนดให้ประสิทธิภาพการบริหารความเสี่ยงเป็นตัวแปรคั่นกลางสำหรับอุตสาหกรรมเคมีภัณฑ์ในประเทศไทยโดยการเก็บรวบรวมข้อมูลจากผู้บริหารฝ่ายตรวจสอบภายใน อุตสาหกรรมเคมีภัณฑ์ในประเทศไทย จำนวน 328 คน และใช้แบบสอบถามเป็นเครื่องมือ สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ การวิเคราะห์การถดถอยแบบกำลังสองนัยที่สูด ผลการวิจัย พบว่า 1) ผลกระทบของศักยภาพการตรวจสอบภายใน มีผลต่อประสิทธิภาพการบริหารความเสี่ยง โดยมีวัฒนธรรมองค์กรเป็นตัวแปรแทรกอย่างมีนัยสำคัญทางสถิติ ( $p<0.1$ ) และ 2) ผลกระทบของประสิทธิภาพการบริหารความเสี่ยง มีผลต่อการยอมรับของลูกค้า ภายใต้เงื่อนไขที่กำหนดให้ความสามารถตรวจสอบได้เป็นตัวแปรแทรกอย่างมีนัยสำคัญทางสถิติ ( $p<0.01$ )

**คำสำคัญ :** ศักยภาพการตรวจสอบภายใน, ประสิทธิภาพการบริหารความเสี่ยง, การเป็นที่ยอมรับจากลูกค้า, วัฒนธรรมองค์กร, ความสามารถในการตรวจสอบได้

### **Abstract**

This article is aimed at the effects of internal audit competency on client acceptance under risk management efficiency as mediating variable within chemical products of Thailand. The samples were 328 chief internal audit officers who participated in the production of chemical products of Thailand. A questionnaire was used to collect the data. The ordinary least squares (OLS) regression analysis was employed for data analysis. The results indicate that the

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relationships between internal audit competency and risk management efficiency, where corporate culture is taken as a moderator significantly at ( $p<0.1$ ). Moreover, the strong positive risk management efficiency could be given higher value and increase the opportunities for client acceptance significantly at ( $p<0.01$ ).

**Keywords:** internal audit competency, risk management efficiency, client acceptance, corporate culture, and auditability.

## Introduction

Internal audit competency is a key factor involved in helping organizations achieve firm's objectives (Ashbaugh-Skaife, et al., 2007). A primary focus area of internal audit competency as it is concerned with audit capability to evaluating and improving the effectiveness of risk management, internal control and best practice processes in an organization (Alzeban and Gwilliam, 2014). These are still important roles for internal audit functions, internal auditor competency should be designed to add value and improve an organizational operations with management to systematically review systems and operations (Arel, 2010).

At present, many internal audit functions enables internal audit competency to do job effectively. In this research identifies that both professional ethic and technical expertise of internal audit competencies. Professional ethic is character that provides the inner motivation and strength to do what is right and good (Nuttavong and Krittaya, 2014). And technical expertise is an important capability both academic and profession which able to use several tools of internal audit to get success. (Bandyopadhyay, et al., 2014).

Internal audit competency under corporate culture has become increasingly important as its organizational development advantages have become more widely known until internal audit competency helps to ensure risk management efficiency (Barua, et al., 2010).

Risk management efficiency concerns matters that contribute to the likelihood of the internal auditor achieving the fundamental objective of obtaining reasonable assurance that the financial report as a whole is free of material misstatement, and the auditor ensures any deficiencies detected are addressed or communicated through the internal audit report (Botez, 2012).

The objective of risk management efficiency is to manage uncertainty and actions taken to: identify; assess; monitor; and reduce the impact of risks to business. The efficiency of risk management plan with appropriate risk management strategies can minimize costly and stressful problems, and may also reduce insurance claims and premiums or call that risk management efficiency (Botez, 2012).

Risk management efficiency is a vital tool in helping client acceptance through challenging auditability. Incorporating a risk management efficiency as part of operational

activity and strategic decision making will help to improve client acceptance from providing a high quality, value priced good or service as well as high quality customer care, always on time, and arrive when the client demands it (Chahine and Filatotchev, 2011).

Developing models for effects of internal audit competency on client acceptance via risk management efficiency as mediator is a challenge as the literature on internal audit competency is vast, varied, and evolving. These have motivated researchers to continue to develop improved models with research question.

## Research Objective

The purpose of this study is to test the effects of internal audit competency on client acceptance via risk management efficiency as a mediator. The research questions of the study are as follows: How does the internal audit competency affect the risk management efficiency via corporate culture as a moderator? How does risk management efficiency affect client acceptance via auditability as a moderator? And, how does internal audit competency influence client acceptance via risk management efficiency as a mediator?

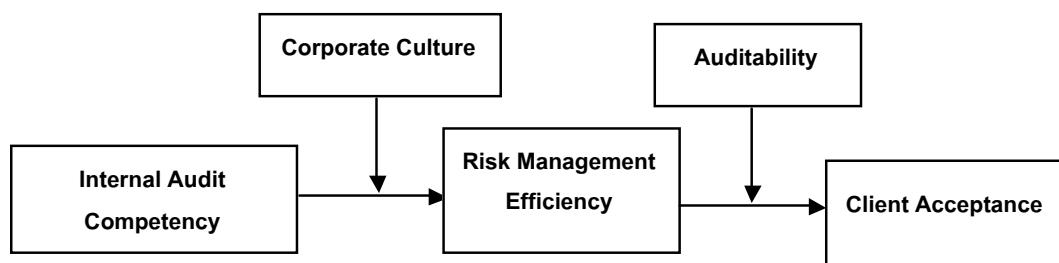


Figure1

**The effects of internal audit competency on client acceptance of the firms within Chemical product of Thailand**

## Relevant Literature Review

The research model of this study is illustrated in figure 1. This model shows the effects of internal audit competency consist of professional ethic and technical expertise on client acceptance via the risk management efficiency as a mediator. This research model is explained as follows.

### 1. Effects of professional ethic

A code of ethics is necessary and appropriate for the profession of internal auditing, founded as it is on the trust placed in its objective assurance about risk management efficiency, internal control and governance (Boyce, 2014). Professional ethics have four components. It includes integrity, objectivity, confidentiality, and professional behavior (Dixon, et al., 2004).

Professional Integrity is honesty, fair dealing, trustworthy and free from conflict of interest. Professional Objectivity is the careful use of protracted procedures and test to arrive to a conclusion such that a similar independent test by another person would give the same conclusion (Ardelean, 2013). Professional Confidentiality is respect confidentiality of information acquired during the course of performing professional services and should not use or disclose or appear to use any such information without proper and specific authority or for personal advantage or advantage of the third party unless there is a legal or professional right or duty to disclose (Grandgenett, 2010). Professional behavior is an obligation on professional accountants to comply with relevant laws and regulations and avoid any action that may bring discredit to profession (Farahani, 2012).

The surveys found a number of challenges remain in implementing effective ethics and compliance risk management programs. These challenges and proposes solutions that ethics and compliance professionals can integrate into these efforts to improve risk management efficiency via corporate culture as moderator (Eschenfelder, 2011).

Increasingly, professional ethics and compliance risk management requires a corporate culture. An important factors of corporate culture is the collaboration of companies need implement integrated risk management processes that work together to define and identify risks, educate workers, detect violations, conduct investigations and

continually fortify the corporate culture (Le Menestrel and Van Wassenhove, 2009).

Thus, professional ethic seems to have a positive relationship with risk management efficiency via corporate culture as a moderator. Therefore, the following hypotheses are posited:

**Hypothesis 1a:** The higher the professional ethic of internal audit competency the more the firm achieve greater risk management efficiency.

**Hypothesis 2a:** Corporate culture will positively moderate the professional ethic of internal audit competency to risk management efficiency.

## 2. Effects of technical expertise

Technical expertise refers to maintaining professional knowledge and skill at the level required to ensure that employers receive competent professional services and to act diligently in accordance with applicable technical and professional standards when offering services (Everett and Tremblay, 2014). Technical expertise consists of communication and audit reporting and sampling capability.

Firstly, communication capability are an important knowledge and skill to be used for obtaining and confirming information and facts about the way systems and controls are being operated. At the same time they represent an opportunity to create and maintain good relations between the audit department and its clients, and to impress the client with the professionalism of internal audit (Daniela and Attila, 2013).

Secondly, audit reporting capability is knowledge and skill to be used for an assurance on the system under review; and

form the basis of the overall assurance on the internal control system to be provided in reports to the head of the organization (Martin, et al., 2014).

Finally, sampling capability is knowledge and skill obtaining evidence to form a view and provide recommendations for improvement regarding the soundness and application of accounting, financial and operational controls of an organization. The evidence has to be sufficient, relevant and reliable (Munteanu and Zaharia, 2014).

Technical expertise of internal audit competency is helping organizations improve risk management efficiency is to preserve the value created by company activities and to avoid the occurrence of negative events (Simon, et al., 2014).

However, the important of the corporate culture as moderating of internal audit competency affect to risk management efficiency because the corporate culture is the degree to which individuals understand that risk and compliance rules apply to everyone as risk management efficiency. (Munteanu and Zaharia, 2014)

Thus, technical expertise seems to have a positive relationship with risk management efficiency via corporate culture as a moderator. Therefore, we posit the hypotheses as follows:

**Hypothesis 1b:** The higher technical expertise of internal audit competency the more firms achieve greater risk management efficiency.

**Hypothesis 2b:** Corporate culture will positively moderate the technical expertise of

internal audit competency to risk management efficiency.

### 3. Consequences of risk management efficiency

Risk management refer to the systematic process of understanding; evaluating and addressing these risks to maximize the chances of objectives being achieved and ensuring organizations, individuals and communities are sustainable (Bruce, 2014).

Risk management efficiencies consist of internal environment all-round; risk assessment validity; risk response timeliness; control activities complete; information and communication clearing; monitoring reliability (Cheng, et al., 2012).

Moreover, the strong positive risk management efficiency could be given higher value and increase the opportunities for client acceptance (Oprean, 2014).

Thus, this research implies that a firm with high risk management efficiency under auditability will gain high client acceptance. Hence, the following hypotheses are proposed:

**Hypothesis 3:** The risk management efficiency will have a positive relationship with client acceptance.

**Hypothesis 4:** Auditability will positively moderate the risk management efficiency to client acceptance.

## Research Methods

### 1. Sample

For this research, data from industrial estate authority are used due to their availability and significant indicator to identify economic

situation in Thailand. The sample was selected from the firms within chemical product of Thailand with simple random sampling. A mailed survey was used for data collection. The key participants in this study were chief internal audit officers within chemical industry of Thailand. Of the surveys completed and returned, only 328 were usable. The effective response rate and usable was approximately 29.95% (Aaker, Kumar and Day, 2001). However, the non-response bias did not appear to be a problem in the study on an overall basis.

## 2. Measure

All the variables were obtained from the survey. The independent variables include professional ethic and technical expertise. Internal audit competency was measured on 5-point Likert scales (e.g., 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree).

Most of the scales employed have been adopted from the existing and validated scales used in the extant literature to fit the current situation. Risk management efficiency is measured by the mediator variable that deals with internal audit competency and client acceptance. Risk management efficiency was measured on 5-point Likert scales (e.g., 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree).

Beyond the dependent, independent, and mediator variables, this paper included corporate culture as a moderator variable that provides internal audit competency and may shift the risk management efficiency. Moreover, auditability as a moderator variable provides

risk management efficiency and may have higher client acceptance. Researcher is measured these variable. All variables used is a five point Likert-type scale ranging from one (strongly disagree) to five (strongly agree). In addition, the control variables are firm age and size. Firm age was measured by the number of years a firm has been in existence with a dummy variable (e.g., number of years since 1 – 10 = 1, other = 0) (Zahra, Ireland and Hitt, 2000). The firm's size was measured with the number of employees in a firm with a dummy variable (e.g., number of employees from 1 to 500 = 1, others = 0) (Arora and Fosfuri, 2000).

## 3. Method

Confirmatory factor analysis (CFA) was employed to investigate the validity of constructs. Furthermore, factor scores were used to estimate for regression analysis.

This researchdemonstrates the results of factor loading and Cronbach's alpha coefficients. All factor loadings are greater than 0.6 (Hair et al., 2006) and are statistically significant. Cronbach's alpha of all variables are greater than 0.7 (Nunnally and Berstein, 1994). Overall, the results indicate the reliability and validity of these constructs.

The ordinary least squares (OLS) regression analysis was employed to estimate parameters in hypotheses testing. Two equation models are shown as follows:

$$\text{Equation 1: } RME = \beta_{01} + \beta_1 PE + \beta_2 TE + \beta_3 CC + \beta_4 (CC) + \beta_5 (TE * CC) + \beta_6 FA + \beta_7 FS + \varepsilon$$

$$\text{Equation 2: } CA = \beta_{02} + \beta_8 RME + \beta_9 AUD + \beta_{10} (RME * AUD) + \beta_{11} FA + \beta_{12} FS + \varepsilon$$

Where PE is Professional ethic; TE is Technical Expertise; CC is Corporate Culture; RME is Risk Management Efficiency; AUD is Auditability; CA is Client Acceptance; FA is Firm Age; FS is Firm Size as measured by dummy variable;  $\epsilon$  is error term.

## Results and Discussion

Table 1 shows the descriptive statistics and correlation matrix between variables analyzed by Pearson correlation coefficients. Although it indicates a high correlation between independent variables, it does not have severe multicollinearity problems according to the VIF range from 1.00 to 6.23 (Hair et al., 2006).

### 1. Impacts of internal audit competency on its consequence

Table 2 presents the results of OLS regression analysis of the relationships between internal audit competency and risk management efficiency via corporate culture as a moderator. To inference hypotheses 1a – 1b whether examines the relationship between internal audit competency (e.g., includes professional ethic and technical expertise) and risk management efficiency. The result shows that there are both independent variables consisting of professional ethic and technical expertise have a significant positive effect on risk management efficiency ( $\beta_1 = .074, P < 0.01$ ;  $\beta_2 = .065, P < 0.1$ ) That is, hypotheses 1a and 1b are supported.

Hypotheses 1a, resent research shows that profession ethic can be performing their duties with objectivity, due diligence and professional care, in accordance with

professional standards as well as serve in the interest of stakeholders in a lawful manner, while maintaining high standards of conduct and character, and not discrediting their profession or the association (Farahani, 2012). Thus, these professional ethic gain valuable insight into assess overall effectiveness and target improvements about risk management efficiency (Brannigan, 2012).

Hypothesis 1b, resent research shows that Technical expertise of internal audit competency is helping organizations improve risk management efficiency is to preserve the value created by company activities and to avoid the occurrence of negative events (Simon, et al., 2014).

Thus, professional ethic and technical expertise are important factors used to gain operating opportunities in achieving risk management efficiency. Firms with a greater degree of these three independents appear to have higher risk management efficiency.

### 2. Impacts of risk management efficiency on its consequence

Table 3 presents the results of the relationships between risk management efficiency into client acceptance via auditability. To inference hypotheses 3 whether examines the relationship between risk management efficiency and client acceptance. The result shows that risk management efficiency has a significant positive effect on client acceptance ( $\beta_8 = .054, P < 0.1$ ). That is, hypotheses 3 are supported.

### 3. Moderator effect of corporate culture on internal audit competency into risk management efficiency

Table 2 presents the results of the relationships between internal audit competencies on risk management efficiency via corporate culture as a moderator. Interestingly, effectiveness of professional ethic and technical expertise have a significant positive effect on risk management efficiency via corporate culture ( $\beta_4 = .058$ ,  $P < 0.05$ ;  $\beta_5 = .171$ ,  $P < 0.1$ ). Increasingly, professional ethics and compliance risk management requires a corporate culture. An important factor of corporate culture is the collaboration of companies need implement

integrated risk management processes that work together to define and identify risks, educate workers, detect violations, conduct investigations and continually fortify the corporate culture (Le Menestrel and Van Wassenhove, 2009). As mentioned earlier, these researchers found that corporate culture can help firms achieve great good risk management efficiency with internal audit competency as independent variables. Thus, Hypotheses 2a and 2b are supported.

**Tabel 1** Descriptive Statistics and Correlation Matrix

Constructs	CA	PE	TE	RME	CC	AUD	FA	FS
Mean	3.63	3.64	3.72	3.69	3.68	3.66	-	-
Standard Deviation	0.62	0.66	0.66	0.73	0.75	0.72	-	-
Client acceptance (CA)								
Professional ethic (PE)	0.64*							
Technical expertise (TE)	0.77**	0.58*						
Risk management efficiency (RME)	0.65*	0.88**	0.6*					
Corporate culture (CC)	0.8*	0.66*	0.63*	0.6*				
Auditability (AUD)	0.65*	0.63*	0.67*	0.69*	0.6*			
Firm Age (FA)	0.44	0.45	0.43	0.45	0.38	0.46		
Firm Size (FS)	0.33	0.33	0.35	0.29	0.3	0.42	0.43	

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

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

<sup>a</sup> Beta coefficients with standard errors in parenthesis.

The literature reviews finds that the strong positive risk management efficiency could be given higher value and increase the opportunities for client acceptance. In addition

to the opportunities, it promotes significant and auditability in risk management efficiency that will strengthen client acceptance.

**Table 2** Results of Ols Regression Analysis

Independent Variables	Dependent variable	RME
		CA
Professional Ethic (PE)	0.074*** (0.027)	Risk Management .054*
Technical Expertise (TE)	0.065* (0.031)	Efficiency (RME) .021**
Corporate Culture(CC)	0.052* (0.031)	Auditability (AUD) (0.011)
PE*CC	0.058** (0.034)	RME *AUD .035*** (0.026)
TE*CC	0.171* (0.073)	Firm Age (FA) .025 (0.016)
Firm Age (FA)	0.048 (0.028)	Firm Experience (FS) .023 (0.011)
Firm Size (FS)	0.244 (0.035)	Adjusted R-square 0.721
Adjusted R-square	0.728	

Note: Standard error is in parentheses.

\*\*\* p&lt; .01

\*\* p&lt; .05

\* p&lt; .10

#### 4. Moderator effect of auditability on risk management efficiency into client acceptance.

Table 3 presents the results of the relationships between risk management efficiency into client acceptance via auditability as a moderator. Interestingly, risk management efficiency has a significant positive effect on client acceptance via auditability as a moderator ( $b_{10} = .035, P < 0.01$ ). Auditability is proposed to become a moderator of the aforementioned relationships. Risk management efficiency is committed to providing quality customer service which managers need to assess the risk of losing these customers to competitors and work to mitigate that risk. The overriding reason for management's focus on

**Table 3** Results of Ols Regression Analysis

Independent Variables	Dependent variable	RME
		CA
Risk Management	.054*	
Efficiency (RME)		(0.012)
Auditability (AUD)		.021**
RME *AUD		(0.011)
Firm Age (FA)		.035*** (0.026)
Firm Experience (FS)		.025 (0.016)
Adjusted R-square		.023 (0.011)

Note: Standard error is in parentheses.

\*\*\* p&lt; .01

\*\* p&lt; .05

\* p&lt; .10

customer satisfaction is as a source of competitive advantage (MacGillivray and Pollard, 2008). At some level, managers expect high satisfaction levels to cause customers to prefer a brand to competitive alternatives. Therefore, customer satisfaction has become the most widely used metric in companies' efforts to measure and manage customer loyalty. The assumption is simple and intuitive: Highly satisfied customers are good for business. The topic of risk management and corporate governance principles are strongly interrelated. An organization implements strategies in order to reach their goals (Jayaram, Dixit, 2014). Each strategy has related risks that must be managed in order to meet these goals. Following strong corporate

governance principles that focus on risk management allows organizations to reach their goals. Thus, Hypothesis 4 is supported.

## Contributions and Future Research

### 1. Theoretical contributions and future directions for research

This study provides important theoretical contributions extending on prior studies by incorporating both perspectives of internal audit competency including professional ethic and technical expertise in the same model and links this internal audit competency to risk management efficiency via corporate culture as a moderator. Following the results of this study, future research is needed. The results noticeably revealed that professional ethic and technical expertise affect risk management efficiency. Additionally, this paper considers corporate culture as a moderating effect on these relationships. Furthermore, the relationship between risk management efficiency and client acceptance is found in this research. Most especially, auditability is moderating the relationship between risk management efficiency and client acceptance. Finally, further research should reexamine this research model in other group for more generalized.

### 2. Managerial contributions

For executive managers and firms' owners, this study helps them to understand and know that internal audit competency is an important factor that motivates the firms within chemical product of Thailand. Especially, corporate culture enhances their internal audit

competency increasing risk management efficiency. Moreover, auditability is the moderating effect of the relationship between risk management efficiency and client acceptance.

## Conclusion

This study investigates the effects of professional ethic and technical expertise on client acceptance via risk management efficiency as a mediator. It also documents the moderating effect of corporate culture on the relationships between internal audit competency and risk management efficiency. However, auditability is used to moderate the effect of risk management efficiency and client acceptance. The data was collected from 328 chief accounting officers. The findings show that professional ethic and technical expertise have the most powerful effect on risk management efficiency. For the moderating effect of corporate culture is only the interaction among professional ethic and technical expertise on risk management efficiency. Furthermore, the relationship between risk management efficiency and client acceptance is positive in this empirical research. Interestingly, auditability also is moderates the relationship between risk management efficiency and client acceptance.

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