

INTERNAL AUDIT INTELLIGENCE AND FIRM SUCCESS: EVIDENCE FROM THAI-LISTED FIRM

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Abstract: *This research aims at investigating the relationships among five dimensions of internal audit intelligence (best internal audit concept, internal audit knowledge well-roundedness, internal audit skepticism focus, internal audit ethics awareness, and internal audit excellence mindset) and firm success through the mediating influences of internal audit planning effectiveness, best internal audit practice, and internal audit review efficiency. In this study, data were collected by mail survey questionnaire of 126 Thai-listed firms in Thailand. The results of OLS regression analysis indicated that internal audit knowledge well-roundedness has a significant positive effect on best internal audit practice, internal audit planning effectiveness, and internal audit review efficiency on the consequents. In addition, internal audit quality consequents have a significant positive association with firm success. To verify and increase managerial and contributions of the study, future research needs to collect data from a larger population or comparative population in order to increase the reliability of the results, as well as use another sample population, such as certified public accountants (CPAs), governmental auditors (GAs), or others in Thailand. A potential discussion concerning the research results is effectively implemented in the study. Theoretical and managerial contributions are explicitly provided. The conclusion, suggestions, and directions for future research are recommended.*

Keywords: *Internal Audit Intelligence, Best Internal Audit Concept, Internal Audit Knowledge Well-roundedness, Internal Audit Skepticism Focus, Internal Audit Ethics Awareness, Internal Audit Excellence Mindset, Firm Success.*

1. Introduction

In the era of globalization, change, and volatility, the economic environment has influenced the predictability of firms in survival and maintenance of sustainable growth in a highly competitive situation. In order to survive and grow, firms need continuous development for their operational processes that respond to economic change, to ensure survival, and to achieve firm success (Danneel, 2002).

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Moreover, several companies such as the Petroleum Authority of Thailand (PTT), The Siam Cement Public Company Limited (SCG), the Bangkok Petroleum Public Company Limited, and the Kasikorn Bank Public Company Limited have adopted and held to corporate governance and accountability to society and environment as an operational guideline to business growth that led to simultaneous survivability and sustainability. That is consistent and in accordance with rules prescribed by the Stock Exchange of Thailand (SET). Many Thai-listed firms try to seek the appropriate management processes or methods to improve the

operational practices and develop into proper firms, which lead to high performance in creating competitive advantages in the long term (Institute of Internal Auditors, 2003). Therefore, best practices approach was used to increase firm performance, value added and sustainable competitive advantages.

Rapid environmental change affects improvement of the internal audit function emphasizes future-orientation and continuous improvement as a dynamic, evolved and expanded that scope that of work to cover all aspects of control and, hence, apply their expertise to outside finance focusing on efficiency and effectiveness in operational activity (Cecere, 2008). Moreover, some critical points need best practice to check and present weakness issues, that is, the quality of audit work (O'Dell, 2011). Additionally, the role of the internal audit function was expanding service to support other departments within organization as well (Hass, Abdolmohammadi & Burnaby, 2006).

In this situation, executives and all parties expected that the internal audit function could assess and consult concerning risk management, control system, and corporate governance effectiveness (Hermenson, 2008). Additionally, they can have the stakeholders ensure that finance information which is used in the operations and for decision-making is more use and reliable. Therefore, it is a challenge for the internal audit function to find the best guidelines or procedures for an audit task to respond to an executive's needs, in which the internal audit function can help organizations and stakeholders to ensure that the key risk was identified and controlled appropriately (Jeffrey, 2008). Moreover, it can be said that the current role of the internal audit function is both as an independent consultant and catalyst for change in the operations processes in the

organization in order to be able to survive in a competitive environment and in current change (Institute of Internal Auditors, 2002).

2. Theoretical Foundation and Literature Review

This research adopts the knowledge-based view of the firm, to verify the relationship between internal audit intelligence and firm success, internal audit intelligence is an independent variable of the study which includes best internal audit concept, internal audit knowledge well-roundedness, internal audit skepticism focus, internal audit ethics awareness, and internal audit excellence mindset. Also, firm success is a dependent variable of the study. In addition, best internal audit practice, internal audit planning effectiveness and internal audit review efficiency are mediating variables. Thus, the conceptual, linkage, and research models present the associations between internal audit intelligence and firm success as shown in Figure 1.

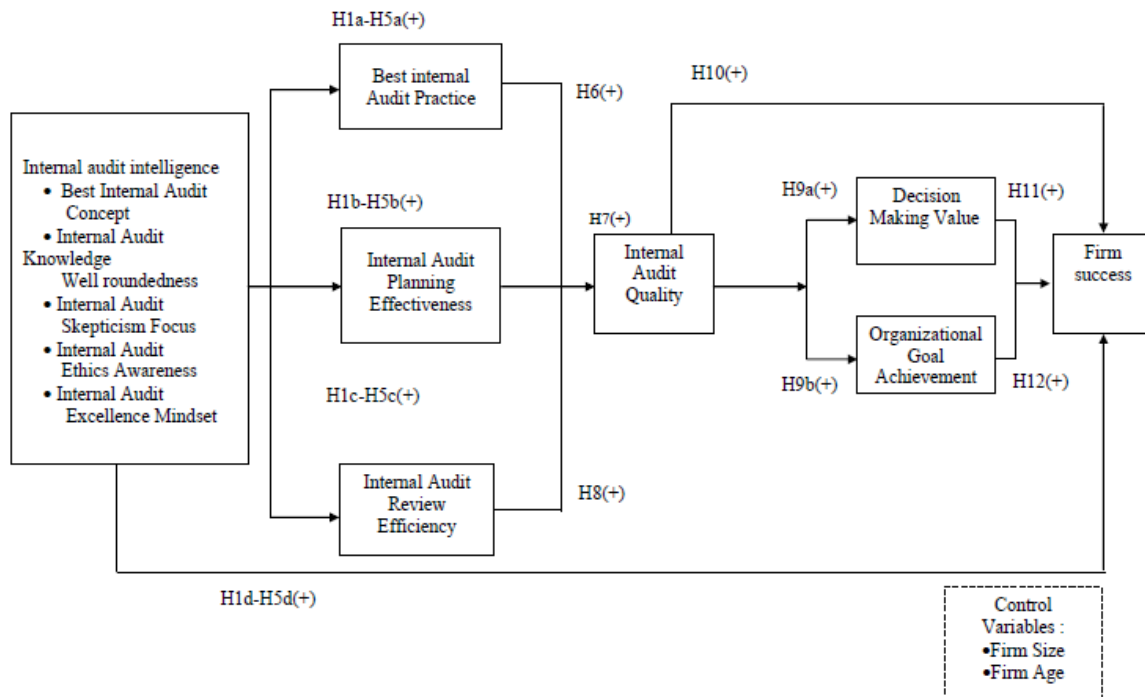
2.1. Internal Audit Intelligence

The importance of internal audit intelligence increases for the audit professional. Internal audit intelligence represents knowledge which allows expert auditors to perform auditing tasks faster, with greater consistency, and to achieve a higher quality of decision-making.

Previous studies show that auditors who are intelligent in the audit task will take advantage of identifying problems, assessing risk, evaluating evidence, and performing skeptical judgment (Nelson, 2009). Internal auditing is a challenging task, particularly when faced with a critical issue involving an auditors' professional judgment to solve their clients' problems. Tan and Libby (1997) found that while tacit managerial knowledge is important for

superior performance at the audit manager level, technical skills are important for superior performance at the staff level.

Figure 1: Relationship Model of Internal Audit Intelligence and Firm Success



The problem-solving abilities distinguish superior performance at the senior rank. These findings suggest that while personality/social attributes such as tacit managerial knowledge are more important for superior performance at higher professional ranks, judgment/technical skills are more important for superior performance at the lower professional ranks. The quality of financial statement audits is dependent on the job performance of auditors. Our understanding of the determinants of auditor job performance has evolved from concentration on the quality of judgments made, based on technical knowledge and ability in overall job performance, including tacit knowledge of a broad set of performance attributes, and the ability to objectively evaluate subordinates. However, relatively little is known about what distinguishes auditors whose overall job performance is relatively superior (McKnight and Wright, 2011).

Auditors must perform in accordance with a professional standard such as the accounting standard on the auditing standard. Auditors should plan and control an audit task to sufficiently compile information and evidence in audit practice.

The early literature on intelligence in auditing focused on technical knowledge (Weber, 1980) and problem-solving ability (Bonner and Lewis, 1990). Likewise, audit intelligence is defined as the ability to apply specific skill to perform complex audit tasks and more provide superior quality service than competitors (Bedard, 1994; Bedard & Chi, 1993). Therefore, in this research, internal audit intelligence is defined as the expertise of auditors, including specific skills and experience, to perform more complex audit tasks and provide more superior quality service than other auditors (Nelson, 2009). It can be classified into five dimensions comprised of best internal audit concept, internal audit

knowledge well-roundedness, internal audit skepticism focus, internal audit ethics awareness, and internal audit excellence mindset.

- Best Internal Audit Concept

Best internal audit concept is the first dimension of internal audit intelligence. Due to the dynamic changes in the environment, companies are trying to create an internal audit system of management to achieve a sustainable competitive advantage (Bielinska-Dusza, 2011). Internal audit practice is an audit procedure performed by a firm's own personnel to check for completeness and accuracy (Sueyoshi et al., 2009). Internal auditing is executed in various environments and within organizations which offer in objectives, laws, and customers (Rameesh, 2003). These differences may affect the practice of internal auditing in each environment. According to Abdolmohammadi and Tucker (2002), the degree of economic development of a country will have an impact on the internal audit practice in that country. This research defines the best internal audit concept as the ability to apply knowledge and skills of techniques, processes, methods, and procedures to keenly assess the likelihood of risky events and to identify ways of reducing the likelihood of occurring events to achieve the audit goals effectively.

The existing literature on internal audit practice concept has differing evidence as follows: internal audit concept is not only related to risk management and value-added auditing, but also finds that the use of processes, procedures, techniques, and tools in the internal audit practice towards best practice to achieve an outcome (Allegrini & D'Onza, 2003). Moreover, the reliability and accuracy of financial reporting is a result of good accounting concepts in accordance with Generally Accepted Accounting Principles (GAAP).

The accounting concept helps accounting control and audit, and systematic practice consistent with accounting standards to be transparent and easily checked (Byington & Chrisensen, 2005). In addition, Havelka and Merhout (2013) stated that operational skill affects operations and also improves the operation and performance of an organization to achieve its goals and objectives (Berber et al., 2013). Hence, best internal audit practice affects good internal audit control that leads to financial reporting reliability, value-added, reduced risk, and increased operational efficiency. The results also show that the firms may have good accounting concept; but if they lack knowledge and understanding of practice, leads to outcomes with errors and that are unreliable (Ninlaphay et al., 2012). Therefore, the hypothesis is postulated as follows:

H1: *The higher the best internal audit concept is, the more likely that internal auditors will gain greater (a) internal audit planning effectiveness, (b) best internal audit practices, and (c) internal audit review efficiency*

- Internal Audit Well-roundedness

Internal audit knowledge refers to the administration of business practices to create the highest level of efficiency possible within an organization. Internal audit knowledge is concerned with converting materials and labor into goods and services to maximize the profits of the organization. Moreover, well-roundedness involves a variety of aspects such as knowledge, skills, expertise, and other competencies related to internal audit knowledge.

In this research, internal audit knowledge well-roundedness is defined as the ability to manage the operations of the organization relating to corporate

governance, designing, and redesigning the business operation associated with converting the resources into products and services as efficiently as possible to maximize the profits of an organization. (Ghrai, 2011)

H2: *The higher the internal audit knowledge well-roundedness is, the more likely that internal auditors will gain greater (a) internal audit planning effectiveness, (b) best internal audit practices, and (c) internal audit review efficiency.*

- Internal Audit Skepticism Focus

Internal audit skepticism focus is the main construct in this research. Although professional skepticism is an important concept that is mentioned frequently in both audit standards and internal audit practice (Hurt, 2010; Nelson, 2009), there are some issues to be discussed. Firstly, what is skepticism? In general, skepticism refers to any questioning attitude or doubt regarding knowledge, facts, or opinions (Ditto & Lopez, 1992). From the viewpoint of auditing professions, skepticism can be considered in 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 (Hurt, 2010). 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 indicate any misstatements (Nelson, 2009). In this research, internal audit skepticism focus is defined as the characteristics that enable the internal audit department to perform internal audit tasks with a questioning mind; be alert to irregular conditions, and ongoing validated evidence and conclusions. These skeptical characteristics reflect a questioning mindset

review; being alert to conditions that may indicate risk and internal control weakness, and critical subjective assessment of risk; internal control and internal audit planning designation. The implementation of professional skepticism into an internal audit department will enable skeptical behaviors and actions that may enhance internal audit effectiveness (McCoy et al., 2011). Hence, the hypothesis is posited as follows:

H3: *The higher the internal audit skepticism focus is, the more likely that internal auditors will gain greater (a) internal audit planning effectiveness, (b) best internal audit practices, and (c) internal audit review efficiency.*

- Internal Audit Ethics Awareness

Internal audit ethics awareness is an important source of accountability for field auditors, and the anticipation of review increases the audit effort and improves audit performance (Payne, Ramsay, & Bamber, 2010). Internal audit ethics awareness is a primary means of audit quality control and auditor training (Payne, Ramsay, & Bamber, 2010). In addition, the conduct of the audit, and external quality reviews are important tools to enhance audit quality (Favere-Marchesi, 2006).

In this research, internal audit ethics awareness refers to the audits that perform tasks in accordance with generally accepted auditing standards, firm policies, and procedures, including the anticipation of review. It increases audit effort, and improves audit performance (Miller, Fedor, & Ramsay, 2006; Payne, Ramsay, & Bamber, 2010). Internal audit ethics awareness plays an important role in audit work. Therefore, audit review awareness has an effect on audit value increase, audit

report quality and financial information usefulness. It can have consequences on audit survival because auditors wish to survive the professional auditing. As mentioned above, and based on these rationales, the following hypothesis is postulated:

H4: *The higher the internal audit ethics awareness is, the more likely that internal auditors will gain greater (a) internal audit planning effectiveness, (b) best internal audit practices, and (c) internal audit review efficiency.*

- Internal Audit Excellence Mindset

Currently, the business environment has changed. To survive more challenging competition, firms need to adapt to harmonize with a competitive and changing environment, and focus on survival in the long-term. In the rapid changes, flexibility has become more important, because it is an ability of a firm to adjust and try to find a new opportunity to timely respond to an environment (Birkinshaw, 2000). According to the above reasoning; the hypothesis is formulated as below:

H5: *The higher the internal audit excellence mindset is, the more likely that internal auditors will gain greater (a) internal audit planning effectiveness, (b) best internal audit practice, and (c) internal audit review efficiency.*

2.2 The consequences of internal audit intelligence

- Internal Audit Planning Effectiveness

In general, audit planning is internal audit activities about to determine audit strategy. The audit planning is updated to reflect changes in the organization's business, operations, systems, controls, and

objectives. The chief audit executive must establish risk-based plans to determine the priorities of the internal audit activity consistent with the organization's goals (Institute of Internal Auditors, 2009). The internal audit planning effectiveness should also consider those activities most affected by recent or expected changes. As a result, 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 & Jovanovic, 2011). Moreover, the audit planning process should include the assessment of audit risk (Sueyoshi et al., 2009). Especially, in the implementation of the internal audit of a firm with high growth and the expansion of existing businesses, an organization needs internal audit planning, as it helps an organization achieve its goals. The ability to combine knowledge, skill, and experience with the internal audit function, and translate them into an action plan, is more likely to improve the management of risk and added value, and improve the operation of businesses (Sampattikorn et al., 2012). Consequently, audit planning has become the main activity which auditors have implemented in order to achieve audit report efficiency, gain audit performance, and enhance audit success (Ussahawanitchakit, 2012). In the research internal audit planning effectiveness refer to Integrative internal audit planning is the second dimension of internal audit proficiency. This dimension of internal audit function or activity focuses on linkage among audit guidelines objectives, goals, and resources. In the internal audit context, internal audit should include planning the complete review of the framework for the management and review of policies, processes and procedures for the identification, evaluation, monitoring, and control of operations (Fernandez-Laviada, 2007).

H6: *The higher the internal audit planning effectiveness is, the more likely that internal auditors will gain greater internal audit quality.*

- Best Internal Audit Practice

Internal audit practice is an audit procedure performed by a firm's own personnel to check for completeness and accuracy (Suevoshi et al., 2009). Internal auditing is executed in various environments and within organizations which offer in objectives, laws, and customers (Rameesh, 2003). These differences may affect the practice of internal auditing in each environment. According to Abdolmohammadi and Tucker (2002), the degree of economic development of a country will have an impact on the internal audit practice in that country. This research defines best internal audit practice as the ability to apply knowledge and skills of techniques, processes, methods, and procedures to keenly assess the likelihood of risky events and to identify ways of reducing the likelihood of occurring events to achieve the audit goals effectively.

The best accounting practices help in accounting control and audit. Systematic practice is consistent with accounting standards to be transparent and easily checked (Byington & Chrisensen, 2005). In addition, Havelka and Merhout (2013) stated that operational skill affects operations and also improves the operation and performance of an organization to achieve its goals and objectives (Berber et al., 2013). Hence, best internal audit practice affects good internal audit control that leads to financial reporting reliability, value-added, reduced risk, and increased operational efficiency. The results also show that the firms may have good accounting practices, but lack of knowledge and understanding of a practice its lead to outcomes that have errors and are

unreliable (Ninlaphay et al., 2012). Thus, the hypothesis is proposed as follows:

H7: *The higher the best internal audit practice is, the more likely that internal auditors will gain greater internal audit quality.*

- Internal Audit Review Efficiency

In this research, internal audit review efficiency is defined as the capability to continuously brainstorm, appraise, and reconsider the internal audit works and conclusions to ensure that the internal audit task is complied with professional standards, assurance and auditing guideline, and firm policies and procedures (Carpenter & Freroz, 2001). It also includes emphasis on appraise and brainstorm with a questioning mind and openness until sufficient evidences are collected. Based on considerable literature, reviewers or partners can communicate and share information among audit members which can affect audit tasks (i.e., audit judgment) (Payne, Ramsay & Bamber, 2010). The shared information includes internal control weakness and the likelihood of management fraud and risk assessment. However, as discussed earlier, implementing only an audit review may not be sufficient to achieve high audit quality. Internal audit functions should implement the concept of professional skepticism into their review process (McCoey et al., 2011).

H8: *The higher the internal audit review efficiency is, the more likely that internal auditors will gain greater internal audit quality.*

- Internal Audit Quality

Internal audit is the activities of assurance and consultation, independence and non-bias to enhance the value of firms and achieve set goals. Moreover, it also is the evaluation tool to improve the effectiveness of risk management, control,

and governance processes (Mihret & Yismaw, 2007). Internal audit function is likely to affect the management and evaluation of an external auditor of the effectiveness of internal control. The lower internal audit function quality can be a material weakness in internal control, of which the existence of internal control effectiveness is to verify that firms have an incentive to obtain quality internal audits (Fadzil et al., 2005).

The research of discusses internal audit quality as one element of internal audit effectiveness which internal audit effectiveness should support to attain the goals and a driving force to improve firms. Internal audit quality can be measured by staff expertise, scope of service, effective audit planning, fieldwork and controlling, and effective communication. Next, the external auditing standard is defined by the internal audit as competency and objectivity of the internal auditors and measures of internal audit quality by individual characteristics, namely professional experience, professional certification, training, the chief audit executive, financial work of internal audit functions, and internal audit size (Prawitt et al., 2009). Gramling and Hermanson (2009) discuss the three components of internal audit quality, that is, the first element as the inputs to the internal audit activities that include the right people focused on skill and personal qualities, and tools focused on appropriate technology and decision aids; the second element as the way internal auditors conduct internal audit activities focused on the right procedure and the techniques that lead to the effectiveness and efficiency of the process; and the third element as the reliability and usefulness of internal audit reports, opinion, and recommendations. From the above reviewed literature, internal audit quality refers to the operational efficiency of internal audits by achieving the objective

and goals of internal audits to add value and reform an organization's operations.

H9: *The higher the internal audit quality is, the more likely that internal auditors will gain greater (a) decision-making value and (b) organization goal achievement.*

- Decision-Making Value

Decision means actions that people take to perform some tasks or solve some problems (Solomon & Trotman, 2003). Making a decision implies that there are alternative choices to be considered and to choose the highest probability of effectiveness or success that best fits with one's goals and values. Yeshmin and Hossan (2011) described decision-making as a comprehensive process consisting of identifying the problem and criteria for decision-making, allocating weights to those criteria; moving to developing, analyzing, and selecting an alternative that can solve the problem; and hence, implementing alternatives and evaluating the decision's effectiveness. In this research, decision-making value is defined as the attainment in the selection among business alternatives to have the value and uniqueness that enable firms to achieve their business objectives.

H10: *The higher the decision-making value is, the more likely that internal auditors will gain greater firm success.*

- Organizational Goal Achievement

In this research, organizational goal achievement refers to the operational outcome or acquired results which enable the firm to achieve the objectives set, by linking the organization's missions, visions, and strategies and procedures with their goals (Ninlaphay et al., 2012). Additionally, the focus on a situation that reflects the intention to acquire, develop and show off

competence in a particular context, leads to goal achievement (Nasiriyah et al., 2011).

Previous research indicates that organizational goals are the challenges leading to effective strategy implementation. Furthermore, the link between the organization's mission, vision, strategy, and goals can help the firm to achieve organizational goals (Zaccaro & Klimoski, 2001). Beside, Gollwitzer (1993) suggests goal achievements are a result from the development of implementation intentions; by eliminate classic problems associated with the control of a goal-directed action. In the meantime, benefits of organizational goals are guidelines for action, constraints in the organization, sources of legitimacy, a standard of performance and a source of motivation (<http://ryerson.ca/~meinhard/841notes/goals.html>, 02 May, 2013).

H11: *The higher the organization goal achievement is, the more likely that internal auditors will gain greater firm success.*

3. Research Methodology

- Reliability and Validity

Factor analysis was firstly used to examine the underlying relationships of a large number of items and to determine whether they can be reduced to a smaller set of factors. With respect to confirmatory factor analysis, a higher rule-of-thumb, a cut-off value of 0.40 was adopted (Nunnally & Bernstein, 1994). The factor loadings are ranges between 0.760- 0.950 and are statistically significant.

Table 1: Results of Measure Validation

| Variables | Factor Loadings | Cronbach's Alpha |
|-------------------------------------------|-----------------|------------------|
| Firm success | 0.845-0.950 | 0.914 |
| Best internal audit concept | 0.795-0.844 | 0.840 |
| Internal audit knowledge well-roundedness | 0.787-0.860 | 0.829 |
| Internal audit skepticism focus | 0.778-0.904 | 0.862 |
| Internal audit ethics awareness | 0.773-0.900 | 0.867 |
| Internal audit excellence mindset | 0.847-0.897 | 0.866 |
| Best internal audit practice | 0.788-0.865 | 0.843 |
| Internal audit planning effectiveness | 0.806-0.889 | 0.878 |
| Internal audit review efficiency | 0.802-0.928 | 0.894 |
| Internal audit quality | 0.838-0.888 | 0.890 |
| Decision making value | 0.760-0.893 | 0.866 |
| Organizational goal achievement | 0.824-0.883 | 0.880 |

The reliability of the measurements was secondly evaluated by Cronbach's alpha coefficients. In the scale's reliability, Cronbach's alpha coefficients are greater than 0.70 (Nunnally & Bernstein, 1994). The scales of all measures appear to produce

internally consistent results; thus, these measures are deemed appropriate for further analysis because they express an accepted validity and reliability in this study. Table 1 presents the results for both factor loadings and Cronbach's alpha

coefficients for multiple-item scales used in this study.

- *Statistic Techniques*

The ordinary least squares (OLS) regression analysis is used to investigate the hypothesized relationships of internal audit intelligence and firm success. Because the dependent variable, independent variables, and control variables in this study were neither nominal data nor categorical data, OLS is an appropriate method for examining the hypothesized relationships (Hair et al., 2010). With the need to understand the relationships in this study, the research models of the aforementioned relationships are as follows.

$$Eq1: BIP = \alpha_{01} + \beta_1 BIC + \beta_2 IKW + \beta_3 ISF + \beta_4 IEA + \beta_5 IEM + \beta_6 FS + \beta_7 FA + \varepsilon_{01}$$

$$Eq2: IPE = \alpha_{02} + \beta_8 BIC + \beta_9 IKW + \beta_{10} ISF + \beta_{11} IEA + \beta_{12} IEM + \beta_{13} FS + \beta_{14} FA + \varepsilon_{02}$$

$$Eq3: IRE = \alpha_{03} + \beta_{15} BIC + \beta_{16} IKW + \beta_{17} ISF + \beta_{18} IEA + \beta_{19} IEM + \beta_{20} FS + \beta_{21} FA + \varepsilon_{03}$$

$$Eq4: FSU = \alpha_{04} + \beta_{22} BIC + \beta_{23} IKW + \beta_{24} ISF + \beta_{25} IEA + \beta_{26} IEM + \beta_{27} FS + \beta_{28} FA + \varepsilon_{04}$$

$$Eq5: IAQ = \alpha_{05} + \beta_{29} BIP + \beta_{30} IPE + \beta_{31} IRE + \beta_{32} FS + \beta_{33} FA + \varepsilon_{05}$$

$$Eq6: DMV = \alpha_{06} + \beta_{34} IAQ + \beta_{35} FS + \beta_{36} FA + \varepsilon_{06}$$

$$Eq7: OGA = \alpha_{07} + \beta_{37} IAQ + \beta_{38} FS + \beta_{39} FA + \varepsilon_{07}$$

$$Eq8: FSU = \alpha_{08} + \beta_{40} DMV + \beta_{41} OGA + \beta_{42} FS + \beta_{43} FA + \varepsilon_{08}$$

3. Results and Discussion

In Table 2, the descriptive statistics and correlation matrix for all variables are presented. With respect to potential problems relating to multicollinearity, variance inflation factors (VIF) were used to provide information on the extent to which non-orthogonality among independent

variables inflates standard errors. The VIFs range from 1.062 to 5.817, which is well below the cut-off value of 10 recommended by Neter, Wasserman and Kutner (1985), means that the independent variables are not correlated with each other. Therefore, there are no substantial multicollinearity problems encountered in this study.

Table 3 represents the results of OLS regression of the relationships among internal audit intelligence, best internal audit practice, internal audit planning effectiveness, internal review efficiency, internal audit quality, decision-making value, organizational goal achievement and firm success. Here, the first set of hypotheses (H1a-d to H5a-d), are the results shown in Eq.1-4. Firstly, the evidence in Table 3 relates to best internal audit concept (Hypotheses 1a-d). The findings show that the best internal audit concept has no significant positive influence on best internal audit practice (H1a: $\beta_1 = 0.059$, $p > 0.10$), internal audit planning effectiveness (H1b: $\beta_8 = -0.106$, $p > 0.10$), internal audit review efficiency (H1c: $\beta_{15} = -0.036$, $p > 0.10$), and firm success (H1d: $\beta_{22} = 0.107$, $p > 0.10$). This finding supports that the firms may have a good internal control assessment; but if the internal auditors do not have enough business knowledge to make the incorrect analysis, that reduces the quality of the audit work (Baker, 2010). Similarly, suggested that an internal auditor, who did not understand the operation consistently, has ability to assess the internal controls that are different, which makes them more vulnerable. Moreover, the possible reason for this is that the internal controls do not align with the reasonable assurance that the needs and priorities of all of its key stakeholders leading to a reduction in adding value to the organization and its stakeholders (Hass et

al., 2006). *Thus, hypotheses 1a – 1d are not supported.*

Table 2: Descriptive Statistics and Correlation Matrix

| Variables | BIC | IKW | ISF | IEA | IEM | BIP | IPE | IRE | IAQ | DMV | OGA | FSU | FA | FS |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|------|------|
| Mean | 4.329 | 4.123 | 4.053 | 4.273 | 4.164 | 4.109 | 4.035 | 4.170 | 4.111 | 4.160 | 4.136 | 3.944 | N/A | N/A |
| S.D. | 0.500 | 0.532 | 0.560 | 0.517 | 0.581 | 0.526 | 0.550 | 0.557 | 0.551 | 0.517 | 0.639 | 0.664 | N/A | N/A |
| BIC | 1.00 | | | | | | | | | | | | | |
| IKW | .631** | 1.00 | | | | | | | | | | | | |
| ISF | .574** | .775** | 1.00 | | | | | | | | | | | |
| IEA | .649** | .685** | .717** | 1.00 | | | | | | | | | | |
| IEM | .628** | .698** | .743** | .814** | 1.00 | | | | | | | | | |
| BIP | .518** | .623** | .592** | .611** | .694** | 1.00 | | | | | | | | |
| IPE | .418** | .629** | .547** | .535** | .575** | .672** | 1.00 | | | | | | | |
| IRE | .498** | .614** | .542** | .660** | .673** | .778** | .757** | 1.00 | | | | | | |
| IAQ | .542** | .619** | .535** | .608** | .668** | .709** | .671** | .800** | 1.00 | | | | | |
| DMV | .520** | .621** | .566** | .656** | .657** | .752** | .700** | .853** | .822** | 1.00 | | | | |
| OGA | .549** | .582** | .572** | .536** | .576** | .511** | .444** | .502** | .558** | .604** | 1.00 | | | |
| FSU | .477** | .516** | .519** | .410** | .548** | .457** | .456** | .488** | .539** | .535** | .853** | 1.00 | | |
| FA | .204** | .011** | .042** | .072** | .039** | -.049* | -.062 | .006** | .049** | -.057** | .079 | .161 | 1.00 | |
| FS | .392** | .290** | .307** | .197* | .202* | .240** | .296** | .236** | .273** | .305** | .364** | .306** | .035 | 1.00 |

*p < 0.10 , *p < 0.05

Table 3: Results of Regression Analysis

| Independent Variables | Dependent Variables | | | |
|-------------------------------------------------|---------------------|---------------------|---------------------|---------------------|
| | BIP | IPE | IRE | FSU |
| | Model 1 H1a-H5a | Model 2 H1b-H5b | Model 3 H1c-H5c | Model 4 H1d-H5d |
| Best Internal Audit Concept (BIC) | 0.059 (0.096) | -0.106 (0.104) | -0.036 (0.097) | 0.107 (0.108) |
| Internal Audit Knowledge Well-roundedness (IKW) | 0.218** (0.110) | 0.429*** (0.118) | 0.281** (0.110) | 0.180 (0.123) |
| Internal Audit Skepticism Focus (ISF) | 0.005 (0.115) | -0.028 (0.123) | -0.161 (0.115) | 0.145 (0.129) |
| Internal Audit Ethics Awareness (IEA) | 0.042 (0.119) | 0.096 (0.127) | 0.297** (0.119) | -0.286** (0.133) |
| Internal Audit Excellence Mindset (IEM) | 0.459*** (0.121) | 0.256** (0.130) | 0.361*** (0.122) | 0.449*** (0.136) |
| Firm Size (FS) | 0.108 (0.140) | 0.306** (0.151) | 0.175 (0.141) | 0.257 (0.157) |
| Firm Age (FA) | -0.379 (0.284) | -0.290 (0.306) | -0.096 (0.286) | 0.565* (0.319) |
| Adjusted R ² | 0.503 | 0.426 | 0.498 | 0.373 |

| | | | | |
|-------------|-------|-------|-------|-------|
| Maximum VIF | 3.680 | 3.680 | 3.680 | 3.680 |
|-------------|-------|-------|-------|-------|

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

The second hypothesis is to investigate the relationship between audit independence awareness, which is the second dimension of internal audit intelligence, and its consequences (Hypotheses 2a-d). According to Table 3, the results of the regression analysis show that the relationships among the second dimension of internal audit intelligence, three consequences of internal audit intelligence, and firm success indicate that internal audit knowledge well-roundedness has a significant positive effect on best internal audit practice ($\beta_2 = 0.218$, $p < 0.05$), internal audit planning effectiveness ($\beta_9 = 0.429$, $p < 0.01$), and internal audit review efficiency ($\beta_{16} = 0.281$, $p < 0.05$). The possible reason for this is that the lack of knowledge, skills, and experience that is necessary for audit planning of the internal auditors may be ignored by some critical activities such as the material weaknesses. As a result, the usefulness of financial reporting for making decisions decreases (Sori, 2009). Furthermore, errors in the audit planning stages are factors that cause inefficiency in confidence to the customers as to the quality of service that are meeting continuously (Karapetrovic & Willborn, 2002). Moreover, a lack of resources and insufficient information for planning leads to decreased effectiveness of an audit plan. This is because cooperation and teamwork requires more resources such as funding, information, time, and people in each section to provide a comprehensive plan to make the operation more efficient (Swafford, 2009). **Thus, hypotheses 2a, 2b, and 2c are supported.**

Thirdly, the regression analysis shows that the relationships among the third dimension of internal audit intelligence, three consequences of internal audit intelligence, and firm success indicate that internal audit

skepticism focus has no significant effect on best internal audit practice ($\beta_3 = 0.005$, $p > 0.10$), internal audit planning effectiveness ($\beta_{10} = -0.028$, $p > 0.10$), internal audit review efficiency ($\beta_{17} = -0.161$, $p > 0.10$), and firm success ($\beta_{24} = 0.145$, $p > 0.10$). It may be implied that operational skills affect the operation and also improve the operation and performance of an organization to achieve an organization's goals and objectives (Havelka & Merhout, 2013). Furthermore, good internal audit practice results in the effectiveness of risk management and driving superior operations. It shows that internal auditors must have sufficient knowledge and skill, processes, methods, and procedures to keenly assess the likelihood of risky events in order to achieve the audit goals effectively. **Thus, hypotheses 3a, 3b, 3c, and 3d are not supported.**

Interestingly, internal audit ethics awareness is the fourth dimension of internal audit intelligence, which focuses on the guidelines for monitoring, verifying, and re-checking the activities of the internal audit. However, the results of the regression analysis show that internal audit ethics awareness has no significant effect on best internal audit practice ($\beta_4 = 0.042$, $p > 0.10$) and internal audit planning effectiveness ($\beta_{11} = 0.096$, $p > 0.10$); but, it has a significant positive effect on internal audit review efficiency ($\beta_{18} = 0.297$, $p < 0.05$). On the other hand, internal audit ethics awareness has a negative effect on firm success ($\beta_{25} = -0.286$, $p < 0.05$). This result is consistent with the research of who stated that the reviewer has experienced different operational results in the perceive scope of review, goals of the organization, and the time to use in comment different. Houston and Stefaniak (2013) stated that the less-experienced

reviewer focuses on improving the quality of internal audit in the present and future rather than the more-experienced reviewer. From the result, work experience and the period of time registered it in the Stock Exchange of Thailand of more than 15 years (which shows more experience), makes possible that internal audit review did not result in an effective internal audit. Furthermore, prior research found that workload pressure influences the review method and leads to poor performance (Agoglia et al., 2009). Another reason may be because time the pressure of internal audit is required to work with a limited budget and time. Thus, time pressure may lead to a review of the work or operation that is less than normal, especially in Thailand, which internal audit is responsible and responsive to the expectations of stakeholders and the requirements of the SET (Mccoy et al., 2011).

In addition, an insufficient and ineffective review of the internal audit results in insufficient information for risk management. Moreover, correct and complete action review is not enough, as the results impair financial reporting quality and cannot add value to the organization. Therefore, the results of this research conclude that dynamic internal audit review cannot result in the outcomes of the internal audit which may be caused by experience, pressure of workload or both. **Therefore, hypothesis 4c is supported, but hypotheses 4a, 4b, and 4d are not supported.**

Finally, in light of audit skepticism mindset (Hypotheses 5a – 5d), the results of the regression analysis show that the relationships among the fifth dimension of internal audit intelligence, three consequences of internal audit intelligence, and firm success indicate that internal audit excellence mindset has a significant positive influence on best internal audit practice ($\beta_5 = 0.459, p < 0.01$), internal audit

planning effectiveness ($\beta_{12} = 0.256, p < 0.05$), internal audit review efficiency ($\beta_{19} = 0.361, p < 0.01$), and firm success ($\beta_{26} = 0.449, p < 0.01$). According to prior studies, these results suggest that the help of internal audit excellence mindset ensures best internal audit practice and internal audit planning effectiveness. In particular, timely reporting reduces the uncertainty related to investment decisions and asymmetric dissemination of financial information among stakeholders as the cause of financial reporting reliability.

Moreover, timely internal audit reporting leads to an appropriate solution in order to meet the situation in effectively evaluating the continuous operations of organizations. Furthermore, a well-timed internal audit report is the best opportunity that management uses to make decisions in a timely manner, resulting in increased value to the organization (Sparks, 2011).

Thus, hypotheses 5a, 5b, 5c, and 5d are strongly supported.

The results in Table 4 demonstrate that best internal audit practice has a significant positive effect on internal audit quality ($\beta_{29} = 0.197, p < 0.05$). This result is consistent with the research of Ninlaphay et al., (2012) who suggested that financial reliability can improve the effectiveness of management decisions; but to achieve business goals, could be the result of other factors such as the ability of the management team, collaboration and enthusiasm of the employees in the organization, and other environmental factors that affect the organization. **Thus, Hypothesis 6 is supported.**

In addition, the results find that internal audit planning effectiveness does not have a significant positive effect on internal audit quality ($\beta_{30} = 0.107, p > 0.10$). Prior research stated that operational system efficiency has no positive effect on its consequences. It may imply that the efficiency of all systems in the firm bring success to the

firm. Although the system is effective, the lack of continuous and accurate follow-through will not maximize the benefits in an organization (Ninlaphay et al., 2012). Moreover, the opinions of the informants stated that the internal audit is a service that provides confidence to the executive to achieve the audit objectives set by the need for cooperation from all parties, including the realization of the role of the internal audit about continuous operational process improvement to achieve sustainable development. As a result, the achievement of firms' goal may depend on employees' cooperation and participation. **Thus, hypothesis 7 is not supported.**

Moreover, the results show that internal audit review efficiency has a significant positive effect on internal audit quality ($\beta_{31} = 0.551, p < 0.01$). These results support that the internal audit is the activities of assurance and consultation, which are independent and non-bias audit reviews to enhance the value of the firms and to achieve set goals (Mihret & Yismaw, 2007). This is consistent with the research of who found that the internal audit functions were perceived of as the increased value of the organization about the recommendations of the internal audits for implementation and risk assessment. Furthermore, Roth (2003) suggests that the critical component to the added value of a firm is extensive staff expertise in a challenging work environment organizational alignment or reinvention and improved performance; and an array of audit services, which are the characteristics of added value to an organization. In addition, the consistency of the vision, mission and strategy of a firm, at both the policy level and operational level, including resistance within, also influences the ability to achieve the organizations' goals. **Thus, hypothesis 8 is supported.**

According to Table 4, the results of the regression analysis demonstrate that

internal audit quality has a strong significant positive effect on decision-making value ($\beta_{34} = 0.802, p < 0.01$), organizational goal achievement ($\beta_{37} = 0.493, p < 0.01$), and firm success ($\beta_{40} = 0.487, p < 0.01$). This is consistent with evidence of the current recognition for the role of internal audit in risk management when it appropriately recognizes the role, Likewise, 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 the loss of revenues (Vijayakumar & Nagaraja, 2012). **Thus, Hypotheses 9a, 9b, and 10 are supported.**

The results of the regression analysis in Table 4 demonstrate that decision-making value has no significant effect on firm success ($\beta_{40} = 0.050, p > 0.10$). In contrast, organizational goal achievement has a strong, significant, positive effect on firm success ($\beta_{41} = 0.819, p < 0.01$). This is consistent with the current evidence of the recognition for the role of internal audit in risk management when it appropriately recognizes its role, leading to achieving the operational goals of the organization (Zwaan et al., 2011). Risk management of the organization provides a framework for management to effectively deal with the uncertainty and associated risk, and opportunity; thereby, enhancing the capacity for achieving firm goals (Savuck, 2007). Moreover, Karagiorgos et al., (2010) found that the internal audit affected efficient risk management; and consequently, the business success and quality of the work. Thus, hypothesis 11 is not supported, but hypothesis 12 is supported.

4. Contributions and Directions for Future Research

- *Theoretical Contributions and Future Directions for Research*

This research is intended to provide a clearer understanding of the relationships among internal audit intelligence, its antecedents, and consequents that influence these relationships, by providing unique theoretical contributions expanding on

previous knowledge and literature of the aforementioned constructs.

Table4: Results of Regression Analysis

| Independent Variables | Dependent Variables | | | |
|----------------------------------------------------|---------------------|---------------------|---------------------|---------------------|
| | IAQ | DMV | OGA | FSU |
| | Model 5 H6-H8 | Model 6 H9a | Model 7 H9b | Model 8 H10-H12 |
| Best Internal Audit Practice (BIP) | 0.197** (0.085) | | | |
| Internal Audit Planning Effectiveness (IPE) | 0.107 (0.083) | | | |
| Internal Audit Review Efficiency (IRE) | 0.551*** (0.097) | | | |
| Internal Audit Quality (IAQ) | | 0.802*** (0.052) | 0.493*** (0.075) | 0.487*** (0.077) |
| Decision Making Value (DMV) | | | | 0.050 (0.059) |
| Organizational Goal Achievement (OGA) | | | | 0.819*** (0.061) |
| Firm Size (FS) | 0.260 (0.230) | 0.178* (0.104) | 0.454*** (0.150) | 0.337** (0.153) |
| Firm Age (FA) | 0.123 (0.110) | -0.429* (0.219) | 0.204 (0.315) | 0.574* (0.321) |
| Adjusted R² | 0.657 | 0.685 | 0.346 | 0.319 |
| Maximum VIF | 3.430 | 1.082 | 1.082 | 1.082 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, ^a Beta coefficients with standard errors in parenthesis

Furthermore, there are main theories used to describe the relationships among the variables in this research. The results of this research help to confirm the usefulness the knowledge-based view which, suggests that internal auditors have the competitive advantage for resources in terms of unique knowledge and capabilities (including the audit method, audit resource, audit scope);

so, they create superior performance that leads to survive in the audit professional.

Thus, internal audit intelligence is affected by contingency factors, and it brings internal audit intelligence. Researchers should focus on the effects of the dimension of internal audit intelligence, firm success, and the other independent variables. Further research should attempt to posit moderator variables or examine the effects of moderators in the different

constructs for the analysis. To verify and increase the benefits, advantages, and contributions of the study, future research should concentrate on appropriate mediators that also fit all of firm success. Moreover, it needs to collect data from a larger population or comparative population in order to increase the reliability of the results, as well as another sample population, such as certified public accountants (CPAs), governmental auditors (GAs) or others in Thailand.

- Managerial Contributions

This study definitely helps auditors identify and justify key components of internal audit intelligence that may be more critical in a rigorous auditing profession in order to achieve survival, and to succeed in the present and future auditing professions. Auditors need to clearly understand these variations and potentially implement them to gain advantages by putting more emphasis on them.

The results provide a useful guideline for the internal auditors about how to establish success by encourage internal audit intelligence. Moreover, auditors will manage limited resources to optimize and validate the key elements that may be seriously more important in the competitive market. Interestingly, internal audit helps lead to important audit performance which reveals internal audit knowledge well-roundedness, internal ethics awareness and internal audit excellence mindset that are used for gaining firm success. Besides, auditors should provide other resources to support these increased variations in order to achieve their effectiveness and create new opportunities in the auditing professions and environments, ultimately leading to increased firm success.

5. Conclusion

Auditors have become important professionals for direct and indirect promotion of economic growth in countries.

Thus, a study of their duties, practices, and activities are definitely essential. This research investigates the influences of internal audit intelligence on the firm success of internal auditors in Thailand. The instrument for data collection is a questionnaire that was mailed to 518 internal auditors in Thailand as the sample of the research. The results of OLS regression analysis show that audit professionalism focus, audit independence awareness, audit expertise orientation, and audit skepticism mindset have a significant positive influence on internal audit knowledge well-roundedness, internal audit ethics awareness, internal audit excellence mindset, and firm success; while audit creativity development has a significant positive effect on firm success. Furthermore, internal audit quality has a strongly significant positive effect on decision-making value, organizational goal achievement and firm success. Likewise, organizational goal achievement has a strongly significant positive influence on firm success. For the influences of the antecedents, the findings reveal that governance vision has a strong significant, positive effect on internal audit intelligence.

Future research should focus on the effects of the dimension of internal audit intelligence, firm success, and the other independent variables. Further research should attempt to posit moderator variables or examine the effects of moderators in the different constructs for the analysis. To verify and increase the benefits, advantages, and contributions of the study, future research should concentrate on appropriate mediators that also fit all of firm success. Moreover, it needs to collect data from a larger population or comparative population in order to increase the reliability of the results, as well as another sample population, such as certified public accountants (CPAs), governmental auditors (GAs) or others in Thailand.

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