

PROACTIVE INTERNAL AUDIT STRATEGY AND FIRM PERFORMANCE: EMPIRICAL EVIDENCE FROM THAI-LISTED FIRMS

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Abstract: *Over the past few decades, despite the fact that there has been an attempt to improve internal audit quality, frauds and corruption still occur. Moreover, black swan events bring about financial crises, which can shake the foundations of the global economy. This suggests ineffective internal audit functions at an organizational level, which lack integrating, building, and reconfiguring strategies. In particular, proactive strategies are required to adapt to ever-changing economic environments. Therefore, this research aims to investigate the effect of proactive internal audit strategies (PIAS) on firm performance. This study indicates that PIAS: internal audit system integration, participative internal audit, comprehensive business risk assessment, and advanced internal audit technology application have a significant effect on its consequences; except outsourcing internal audit utilization. Additionally, fraud prevention competency, superior operational excellence, transparent business practice, stakeholder credibility have a strongly positive effect on stakeholder credibility and firm performance. Moreover, this study also demonstrates that stakeholder credibility has a significant positive impact on firm performance.*

Keywords: *proactive internal audit strategy, internal audit strategy outcomes, fraud prevention competency, superior operational excellence, transparent business practice, stakeholder credibility, and firm performance*

1. Introduction

The road to success in business is filled with obstacles and business competitors who are striving for a competitive edge. It is difficult for an organization to survive in the longer run

if it lacks a powerful instrument that can lead to achieving sustainable goals both in a present and future. Internal audit system seems to be an obvious solution, since it is a driver for creating superior capabilities that can contribute to a firm's success (e.g., Alavi and Tiwana, 2002; Aldamen et al., 2012; Bakhtiari, 2014; Ballou and Heitger, 2005; Chang et al., 2008; Prawitt, Sharp, and Wood, 2012; Salameh, et al., 2011; Simangunsong, 2014). Over the past three decades, several organizations have tried to develop an effective instrument to promote an internal audit system consistent with best practice standards and adaptable to today's ever-changing business environment (The Committee of Sponsoring Organizations of the Treadway Commission: COSO, 2004).

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Although several attempts have been made to continuously improve the quality of audit instruments, frauds and corruption still occur. Some of those events bring about financial crises, known as black swan events, which though in hindsight were predictable, cause significant negative effects on the world economy (Finch, 2009). For example, the subprime mortgage crisis affected the level of stakeholders' confidence on world capital markets (Roth, 2009), which redounded in bankruptcy, insolvency, financial disaster for investors, and taxpayer-funded bailouts. Such situations revealed the weakness of control systems and audit systems (Andrews, 2008). More recent evidence of the ineffectiveness in control and audit systems is the fraud case of King Monkut's Institute of Technology Ladkrabang, Thailand, which caused financial losses of about 1.663 billion baht (50.45 billion dollars; Fredrickson, 2014). Such obvious failings of internal audit systems raise questions concerning the overhaul and ongoing improvement of internal audit systems.

The biggest single contributor to control and internal audit failure is lack of skills to define and create appropriate strategies tailored to the market positioning of the organisation and economic conditions generally (e.g., Ramirez-Blust, 2007; Srivastava, Franklin, and Martinette, 2013). Similarly, Choi and Lee (2002) and Thornhill and Amit (2003) demonstrate that an organization will face poor performance if it fails to continuously develop new knowledge and new strategies. Consequently, to survive, organizations need to develop internal audit strategies (Alic and Rusjan, 2010). In particular, proactive strategizing should

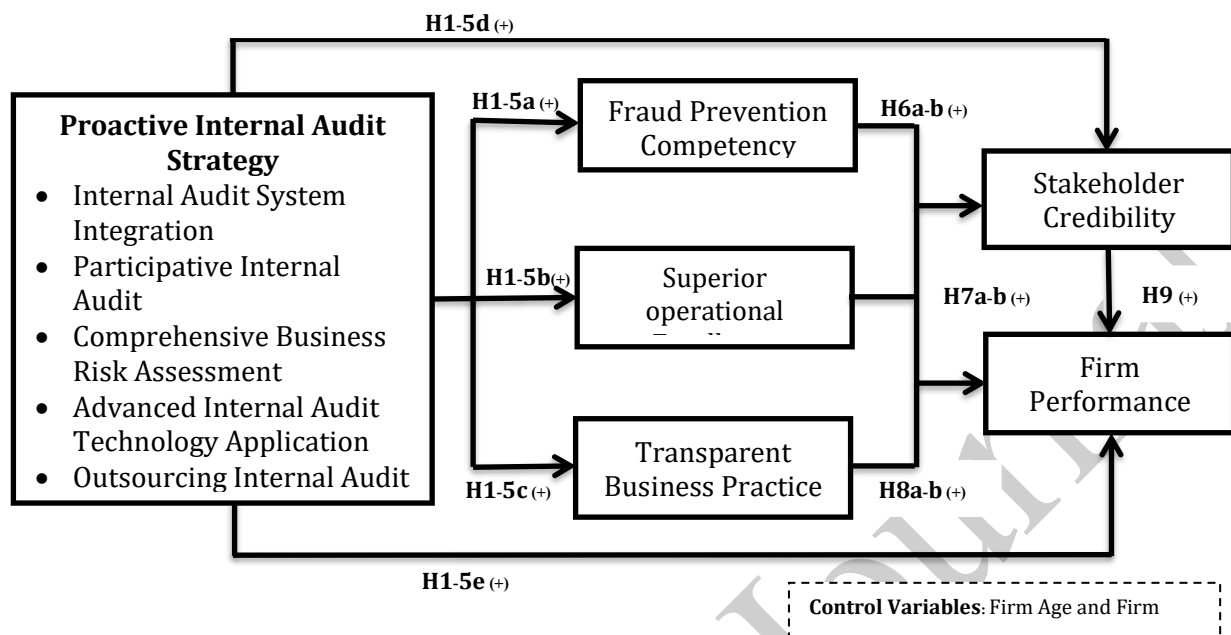
emphasize the collection and assimilation of techniques, methods, procedures, and technology, enabling an organization to take advantage of its competitive strengths (Nonaka, 1994; Porter, 2011; Winter, 2012).

Moreover, proactive internal audit strategizing should aim to dynamically integrate, build, and reconfigure strategies to effectively adapt to an ever-changing business environment (Pavlou and El-Sawy, 2011; Teece, 2007). At the same time, proactive audit strategizing reflects the development of good governance, which serves as an important tool for administrators to foresee problems, obstacles, and losses, in order to avoid them. Additionally, proactive internal audit strategy assists top administrators identify opportunities to improve and optimize efficient use of scarce resources. Therefore, proactive internal audit strategy can serve as powerful theoretical tools for administrators to maximize the strengths, opportunities, and competitive advantages of an organization. It not only helps an organization to achieve its goals, but increases the level of confidence of stakeholders in the longer run.

2. Literature Review

This research study aims to explain the relationships among proactive internal audit strategy, fraud prevention competency, superior operational excellence, transparent business practice, stakeholder credibility, and firm performance. Based on the literature review, the conceptual model of proactive internal audit strategy and firm performance in Figure 1 illustrates the hypothesized causal linkages among these variables.

Figure 1
Conceptual Model of Proactive Internal Audit Strategy and Firm Performance



In this study, dynamic capability theory is used to describe how firms integrate, build, and reconfigure their resources and existing competencies into new competencies that adapt to the ever-changing contemporary business environment (Teece, Pisano, and Shuen, 1997; Teece, 2007). According to Macher and Mowery (2009), dynamic capability derives from a firm's assets (e.g., skill, technique, and technology), which are the systematically-generated learning and accumulated experiences of the firm. Dynamic capability offers several business advantages. First, it has been shown to encourage development of distinctive competencies and strengths of a firm. In addition, it has been applied to improve innovative products (Helfat and Raubitschek, 2000) and reduce delivery cost (Nickerson and Zenger, 2004). Finally, it has brought superior competencies and unusually high returns on investment (Teece, 2007; Porter, 2011). Winter (2003) has noted that the firms with superior dynamic capability report superior performance outcomes. In the same vein, **Proactive Internal Audit Strategy (PIAS)**

Zahra et al. (2006) have found that a firm rated highly on dynamic capability is more likely to outperform a firm with exiguous dynamic capability. This means that an organization needs to generate, build, and reconfigure its existing assets into strategic assets when faced with new challenges (Pavlou and El-Sawy, 2011). For this reason, developing the ability to transform existing assets into strategic assets is a crucial strategy to create a competitive growth advantage (Winter, 2012; Nonaka, 1994). Proactive strategies for developing a robust internal audit framework should include anticipating future problems, needs, or changes. These should utilize a forward-looking approach in the light of innovative or new adventure activities for best practice strategic management of internal audit systems (Lampkin and Dess, 1996). Therefore, proactive internal audit strategies on conceptualizing strategic assets within a context of dynamic capability is a potentially powerful tool for assessing the relationships between environmental factors, strategies, competitive capabilities, and firm outcomes. Today's businesses operate in a dynamic, and sometimes volatile, competitive

environment, therefore, powerful internal control and audit system are needed. PIAS seem to offer an efficient model, as they provide a platform to continuously evaluate and improve the effectiveness and efficiency of an organization's basic capabilities – risk management, internal control, and governance. Such strategic actions generate new knowledge (Pavlou and El-Sawy, 2011), reflecting different strategies (Kaplan and Norton, 2004), which encourage a competitive advantage that can lead an organization to accomplish its long-term strategic goals (Porter, 2011). On the other hand, businesses may face poor performance if continual creation of new capability does not exist (Choi and Lee, 2002). Besides, access to valuable resources with unique characteristics is only one-way to build sustainable competitive advantage (Zack, 1999). For instance, an organization having superior knowledge can coordinate and combine its resources, thus offering superior service to customers than its competitors (Penrose, 1995). New capabilities are then a valuable strategic asset that can offer proprietary competitive advantages, which enable an organization to distinguish itself from the competition by using management strategies (Choi and Lee, 2002). Moreover, proactive internal audit strategizing also concentrates on creating strategy maps as instruments for assessing the linkage between strategies and performance of an organization (Seminogovas and Rupsys, 2006). As a result, PIAS in the managerial accounting concept is considered a key to achieving sustainable goals.

- Internal Audit System Integration

An unexpected and rapidly changing environment causes an organization to change its strategy to build a new advantage over rivals (Gupta and Winter, 2009). Integration is one approach that can be used to make a difference in its capabilities, through the assimilation of the existing knowledge economy (Acworth, 2008), which is the ability for integrating

internally-held knowledge that needs to share its view of the problem by combining and reformulating existing knowledge to generate new insights and solutions (Nonaka, 1994). These provide a faster affordable mechanism such as creating a new product (De Boer, Van Den Bosch and Volberda, 1999) in order to achieve superior performance by integrating R&D cost (Frost and Zhou, 2005). Therefore, knowledge integration involving an internal audit system is at the heart of creating the dynamic capability advantage (Alavi and Tiwana, 2002). Internal audit activities are recognized as smarter fraud prevention measures, especially in-house internal audit, which efficiently enables the operational processes of an organization to improve its performance (Salameh, et al., 2011). Additionally, Carmeli and Tishler (2004) have found that intangibility of organizations (e.g. internal audit) has a positive effect on firm performance and can lead to organizational success by improving productivity of employees and increasing the return on investment (Bryer, 2006). Therefore, the hypothesis is as follows:

H1: *Internal audit system integration has a positive effect on (a) fraud prevention competency; (b) superior operational excellence; (c) transparent business practice; (d) stakeholder credibility; and (e) firm performance.*

- Participative Internal Audit

Participation plays an important role in much work redesign methods and initiatives (Wilson, 1991). This is because participation can build common support and educate around an agency's activities. As well, it can enhance exchange of useful information, and it empowers individuals and groups to influence an agency's decision-making (Glass, 1979). In addition, if employees are involved in decision-making processes, they can take the result of decisions and apply them strategically in the workplace, depending on the situation and the number of organizational levels (Jermias and Setiawan, 2008). However,

participation requires each individual's trust and willingness to participate, especially in a participatory audit that encourages transparent operation (Gaventa and McGee, 2013) and anti-fraud processes (Gaventa and McGee, 2013). Therefore, strategic participation helps strengthen the effectiveness of internal auditing and becomes a major factor in achieving organizational operation efficiency (Hawkes and Adams, 1995). Jain and Kini (1995) have suggested that venture capitalist monitoring has a positive influence on operating performance. In a similar vein, McNabb and Whitfield (1998) have found that participation has significant positive effects on financial performance. Moreover, civic participation also reflects trust among stakeholders, including the relevant public (La-Porta et. al., 1996), and is used as a strategy for enhancing the flow of important information, leading to superior organizational performance (Lin and Tseng, 2006). Thus, the hypothesis is as follows:

H2: *Participative internal audit has a positive effect on (a) fraud prevention competency; (b) superior operational excellence; (c) transparent business practice; (d) stakeholder credibility; and (e) firm performance.*

- Comprehensive Business Risk Assessment

When financial fraud persistently appears, business risk assessment becomes a vital issue to which all organizations should turn their attention. That is because risk assessment is a systematic process for evaluating and identifying events that might affect both positive and negative organizational objectives (Frigo and Anderson, 2011). If these potential events intersect with the objectives of an organization, they may become risks (PricewaterhouseCoopers: PWC, 2008). In addition, risk assessment is used as a technique to evaluate identified risks, isolate causes, determine the relationship to other risks, and express the adverse effects

in terms of both probability and consequence of incidents (Beasley, Branson and Hancock, 2010). Consequently, risk assessment is an extremely important matter in an internal audit system. Ballou and Heitger (2005) assert that effective assessments are anchored in defining the risk appetite and tolerance of an organization, and gives a basis for determining risk response and building a robust risk assessment process in an internal audit system. Furthermore, business risk assessment reflects management effectiveness (Haimes, 2005), social responsibility (Kytte and Ruggie, 2005), transparency (Pennywell, 2009), and fraud prevention of an organization. Further, it helps to leverage an organization's capabilities (Quinn, 1999), and increases effective strategic decision-making in organizational management (Trotman and Wright, 2012). Moreover, Pézier (2003) has found that development of risk management function has a significant effect on a firm's survival. Thus, the hypothesis is as follows:

H3: *Comprehensive business risk assessment has a positive effect on (a) fraud prevention competency; (b) superior operational excellence; (c) transparent business practice; (d) stakeholder credibility; and (e) firm performance.*

- Advanced Internal Audit Technology Applications

To build a competitive advantage, many organizations focus on developing advanced technology applications such as information technology, innovative technology, and technology-based audit techniques (Porter, 1991). Adopting modern technology, both software and hardware, shows the organization's capability in offering new products and/or services (Koellinger, 2008) and contributes to higher achievement of organizational goals (Williams and Frolick, 2001). A great number of studies have shown the relationship between application of technology and operational value (e.g.,

Brynjolfsson, Hitt, and Yang, 2002; Black and Lynch, 2001). An organization with superior information technologies can assist a firm to rapidly access information, reducing its running costs, and increasing its revenue (Porter, 2001). This means that it contributes to the operational excellence and superior outperformance both now and in the future (Brynjolfsson and Hitt, 2005). In particular, high information technology investment has been shown to prevent both external fraud and internal fraud (Shaikh, 2005; Tam, 1998). For instance, performance monitoring has been shown to increase when auditors use Integrated Test Facility, Test Data, and Generalized Audit Software (Swanger and Chewning, 2001). Moreover, applying technology has been viewed as a reflection of an organization's credibility and operational transparency when there is better auditing regime in place (Sudhir and Talukdar, 2015). Thus, the hypothesis is as follows:

H4: *Advanced internal audit technology applications have a positive effect on (a) fraud prevention competency; (b) superior operational excellence; (c) transparent business practice; (d) stakeholder credibility; and (e) firm performance.*

- Outsourcing Internal Audit Utilization

Outsourcing is described as the contracting of professionals from external organizations in order to provide services for various tasks (Endorf, 2004). Although internal audit functions as a part of an organization, outsourcing is required for businesses. According to Serafini et al.'s (2003) survey research, of the firms that have an internal audit function, 54% are outsourcing their auditing, and 43% are considering outsourcing in the future. 15% of US firm's internal auditors are outsourcing providers (Carcello, Hermanson and Raghunandan, 2005), and 64% of internal auditors in South Africa's public sector are outsourcing (Barac and Van-Staden, 2014). This implies that most organizations believe that outsourcing

offers advantages, such as quality, superior service, and image to the organization, which an in-house internal audit would not. Additionally, outsourcing can increase budget flexibility, decrease the need for hiring and training specialized staff, bring in fresh expertise, and reduce management costs (Visagie, 2005). Ramirez-Blust (2007) has shown that outsourcing functions can increase the effectiveness of an organization's operational practice, and can promote independence and transparency of audit operations. Simultaneously, relying on outsourcing for auditing improves the performance of an organization (Rothaermel, Hitt, and Jobe, 2006) and effectively protects against fraud (Coram, Ferguson, and Moroney, 2008). Therefore, the hypothesis is as follows:

H5: *Outsourcing internal audit utilization has a positive effect on (a) fraud prevention competency; (b) superior operational excellence; (c) transparent business practice; (d) stakeholder credibility; and (e) firm performance.*

Fraud Prevention Competency (FPC)

Fraud is an act or cause of deception, deliberately practiced to gain unlawful or unfair advantage (Ramos, 2003). Fraud becomes a significant problem, which can not only damage an organization, but have negative impacts on stakeholders, including the buying public, and the nation. Some fraud gives rise to financial crises that has an impact on the broader economy (Shiller, 2012). For example, inadequate auditing by the likes of Enron, WorldCom, and Arthur Andersen in 2001 has been shown to lead to world economic collapse (Gabbioneta, 2014). In addition, fraud can occur at any time when a person is faced with acquisitiveness, lack of restraint, and an unconscious mind (Benjamin, 2001). A survey of Global Fraud Research by the Association of Certified Fraud Examiners in 2012 shows that each year businesses can lose 5 percent of their revenues due to fraud, and had more costly for detecting potential fraud (Tackett, 2013). However, Feroz,

Park and Pastena (1991) have found that, when announcing fraud, there follows abnormal negative returns for a three-day window. Moreover, fraudulent firms usually have poor governance which reduces stakeholder faith (Farber, 2005). For this reason, prevention is the best method to cope with financial loss through fraud; and, fraud prevention also enables the organization to achieve business goals by increasing revenue, decreasing costs, and reducing losses (Montague, 2010). Thus, hypothesis can be presented as follows:

H6: *FPC has a positive effect on (a) stakeholder credibility; and (b) firm performance.*

Superior Operational Excellence (SOE)

Operational excellence is the goal of conducting business in a manner that improves quality, obtains higher yields, faster throughput, and less waste (Adkins, 2007). Past research has demonstrated how operational excellence is a part of an organization that succeeds when it is used in the management of decision-making (e.g. Leonard and McAdam, 2002). Therefore, operational excellence is driven by an organization's management approach, which gives rise to business growth (Day et al., 2008). For instance, Asif et al. (2010) explores the methodology of operational excellence; the results yield that operational excellence is a developing, lean process, which provides technical structures and routines within the manufacturing practices. Indeed, manufacturing practices have been shown to develop over time, leading to a positive impact on organizational performance (Shah and Ward, 2003). In addition, operation excellence is a major factor that can enable an organization to create competitive advantage, which will lead it to achieving organizational goals, whether they are profit or growth in all circumstances (Duggan, 2011). Hence, hypothesis can be presented as follows:

H7: *SOE has a positive effect on (a) stakeholder credibility; and (b) firm performance.*

Transparent Business Practice (TBP)

Transparency is the availability of firm-specific information to those outside publicly traded firms (Bushman, Piotroski, and Smith, 2004). Transparency is a basic requirement for performing businesses, as it enables an organization to attain set goals (Greiner, Ockenfels, and Werner, 2011). To reduce information asymmetries and to increase transparency in businesses, disclosure needs to be mandatory such as in disclosing full and truthfulness, performance accountability, and equal assessing of information (Penno, 1997). Empirical research by Myers and Majluf (1984) has revealed that organizations with greater transparency are more likely to count on equity than debt because equity is more sensitive to information in a capital market than debt. As such, firms with voluntary disclosures have superior performance (Anderson, Duru, and Reeb, 2009), which serves as a strategy to correct poor performance (O'Neill, 2006). Additionally, Stiglitz (2003) has indicated that the market will rapidly respond to good information. Thus, transparency is an instrument that highlights the centrality of the faith of stakeholders, by which Osborn (2004) believes transparency is the way to reduce the opportunities for corruption and increase trust (Rawlins, 2008). Hence, hypothesis can be expressed as follows:

H8: *TBP has a positive effect on (a) stakeholder credibility; and (b) firm performance.*

Stakeholder Credibility (SC)

SC represents trust and confidence that entail an organization's success (Post, Preston, and Sachs, 2002). Typically, stakeholders trust the organization so as to gain benefits or to protect potential damages from their involvements or equities; particularly, when stakeholders are involved in an investment with the firm (Greenwood and Van Buren III, 2010). An organization can build trust with stakeholders by adopting ethical standards, implementing code of conduct, and understanding the public benefit

requirement (Lannuzzi, 2000). According to King, Lenox, and Barnett (2002), working with reputable stakeholders promotes credibility, which entails superior performance. Similarly, Hegen and Choe (1999) highlights the importance of stakeholder trust on firm performance, where they find that building a cooperative relationship with a partner in their country achieves a higher level of performance than in a different country. Besides, if firm lacks credibility from an investor or other stakeholders, markets may end up with an unexpected surprise. Thus, stakeholder credibility is good, and stakeholder credibility will help an organization to achieve its goals (Lins, Servaes, and Tamayo, 2015). Hence, the hypothesis is as follows:

H9: *SC has a positive effect on firm performance.*

3. Research Methods

- *Sample Selection and Data Collection Procedure*

This study surveyed 547 Thai-listed firms, excluding MAI and Rehabilitation firms, drawn randomly from the database of The Stock Exchange of Thailand (SET) on May 1, 2015. The full list of firms was displayed on the following website: <http://www.set.or.th/th/company/companylist.html>. The 68-item questionnaire was used as an instrument for collecting data from chief internal audit executives or equivalent via a large-scale industrial mail survey. There were 115 replies, of which 2 were unusable. This represented a 20.66% response rate, which is considered acceptable (Aaker, Kumar, and Day, 2001). In addition, an independent sample t-test showed no statically significant difference in non-response rate between the two groups: the first 57 early and the second 56

last questionnaires (Armstrong and Overton, 1977). Therefore, neither group showed a significantly greater non-response bias than the other.

- *Reliability and Validity*

To ensure instrument quality, first thirty questionnaires were piloted for validity and reliability. As a measure of reliability, Cronbach alpha was used to measure internal consistency of respondents' answers to questionnaire items. Table 1 shows alpha coefficients of constructs ranging from 0.824 to 0.951, which, being higher than 0.70, is generally considered acceptable (Nunnally, 1978). To test validity, two academic experts in the field were requested to review and adjust the instrument for content validity (Lawshe, 1975). Exploratory factor analysis (EFA) was employed to assess construct validity by determining the correlation among the variables in the dataset. Table 1 shows that factor loading values, ranging from 0.683 to 0.970, which, being greater than 0.40, are generally considered acceptable (Hair et al., 2010).

- *Measurements*

The multiple-item scale was developed to increase the validity and reliability of constructs which are abstractions or cannot be directly measured or observed (Sarstedt and Wilczynski, 2009; Liu, 2004). Items were developed to measure the constructs in the conceptual model. Therefore, all variables assessed in the survey were anchored by a five-point Likert scale, ranging from 1 to 5 (strongly disagree to strongly agree), which was developed as a new scale to fill the research gap identified in the literature review.

Table 1
Factor Loading and Alpha Coefficient of Constructs

Items	Factor Loading	Cronbach Alpha
Internal Audit System Integration (IASi)	0.774 - 0.938	0.908
Participative Internal Audit (PIA)	0.737 - 0.889	0.941
Comprehensive Business Risk Assessment (CBRa)	0.685 - 0.869	0.944
Advanced Internal Audit Technology Application (AIATa)	0.817 - 0.959	0.951
Outsourcing Internal Audit Utilization (OIAu)	0.831 - 0.970	0.947
Fraud Prevention Competency (FPC)	0.783 - 0.835	0.824
Superior Operational Excellence (SOE)	0.792 - 0.898	0.862
Transparent Business Practice (TBP)	0.872 - 0.907	0.912
Stakeholder Credibility (SC)	0.783 - 0.918	0.875
Firm Performance (FP)	0.683 - 0.908	0.873

Accordingly, in this study, the variable measurements are defined as bellow:

- *Dependent Variable*

Performance is often recommended for supporting strategy implementation and improving operational performance to achieve a firm's objective goals (e.g., Franco-Santos, Lucianetti and Bourne, 2012). Then, prior studies usually measure firm performance through financial such as profit, return on assets, return on equity, return on sales, and revenue growth (Edwards, 2013; Ittner and Larcker, 1995), and non-financial measurement such as employee turnover, customer satisfaction, and process efficiency (Abdel-Maksoud, Dugdale, and Luther, 2005; Hancock et al., 2013). The use of appropriate performance measurement reflects the ability of the processes, technology, and strategy by which an organization performs under environmental changes overtime. In this study, however, firm performance refers to the success and operational outcomes of an organization to achieve its goals by using the utilized resources effectively, efficiently, and economic.

- *Independent Variables*

PIAS is the core construct of this research which comprises five dimensions. Firstly, *Internal Audit System Integration* is measured by the connection and assimilation of knowledge related to the organization's internal audit system effectively for advocating the key organizational targets to success. Secondly, *Participative Internal Audit* is measured by the audit that emphasizes coordination to thinking and understanding in an internal audit system among executive, officer, and auditor with equality and independence principles in finding ways to solve problems and accepting the audit result. Thirdly, *Comprehensive Business Risk Assessment* is measured by the determining and assessing process damage that affects the organization's objective comprehensively which consists of **risk identification, development of assessment criteria, risks assessment, assessing risk interactions, risks prioritization, and risks response**. Fourthly, *Advanced Internal Audit Technology Applications* is measured by the innovative information technology application both modern software and hardware in the organization's internal audit system to maximize practice potential and flexibility. Finally, *Outsourcing*

Internal Audit Utilization is measured by the hiring the internal audit services provider who has qualifications from outside an organization to assist on task that require specialized expertise temporarily or in a long run.

- *Mediating Variables*: Firstly, *fraud prevention competency* is measured by the ability to inhibit or terminate the acts of disintegrity, deliberately misleading, and distortion of the truth to dishonestly exploitation by law for themselves or others. Secondly, *superior operational excellence* is measured by the great ability to modify guideline and method of solving problems so as to make the process of organization more effective and efficient beyond expected. Thirdly, *transparent business practice* is measured by the business operation on the basis of truthfulness, mutual trust, directly disclosure on appropriate period, responsibility to administration, and auditability. Finally, *stakeholder credibility* is measured by the trust and confidence of stakeholder toward an organization.

- *Control Variables*

Firm age and firm size are determined as control variables. Due to firms being of different age and size, there might be a significant different effect on the prediction of results (Fama and French, 1996; Rothaermel and Deeds, 2004). Besides, Majumdar (1997) also emphasize that the control variable helps to minimize spurious relationships. For *firm age* refers to the actual years that the firm has been in business (Aggrey, Eliab, and Joseph, 2010). Previous research has reviewed that firm age affects internal audit function (Doyle, Ge, and McVay, 2007) and it has a significant impact on failure and governance (Loderer and Waelchli, 2010), technical quality (Balasubramanian and Lee, 2008), and firm performance (Coad, Segarra, and Teruel, 2013). Meanwhile, *firm size* is defined as the scale and scope of operations (Aldrich, 2008). In this study, total assets measured it. Prior empirical

research by Carey, Subramania, and Ching (2006) revealed that the size of an organization determines the internal audit activities. As a result, Bedard, Hoitash and Hoitash (2008) find that large firms with thick capital will be able to invest in developing more attractive oversight of the internal control procedures and auditing activities more than smaller firms. The largest investor also believes that large firm offers more information usefulness in investments than small firms (Redding, 1997). Moreover, large firms are an advantage on the economy of scale, distribution, and advertisement; which these causes different competitive advantages that leads to operational transparency such as transparent in financial reporting (Abbott et. al., 2015) and superior performance (Elhamma, 2015). Consequently, firm age and firm size may have an effect on the conduct of proactive strategy in terms of the internal audit. In this study, it should be controlled.

- *Statistical Techniques*

Correlation analysis was used to explore the relationship among variables; and to identify any multicollinearity. In order to provide clear evidence, variance inflation factors (VIFs) testing is confirmed. Additionally, the ordinary least squared regression (OLS) was employed to test hypotheses; since OLS is appropriate to examine the relationships between variables which are categorical and interval data (Hair et al., 2010). Accordingly, the relationships between variables were transformed into eight statistical equations for further examination, as follows:

$$\text{Equation 1: } FPC = \alpha_1 + \beta_1 IAS_i + \beta_2 PIA + \beta_3 CBRa + \beta_4 AIATa + \beta_5 OIAu + \beta_6 C_FA + \beta_7 C_FS + \varepsilon_1$$

$$\text{Equation 2: } SOE = \alpha_2 + \beta_8 IAS_i + \beta_9 PIA + \beta_{10} CBRa + \beta_{11} AIATa + \beta_{12} OIAu + \beta_{13} C_FA + \beta_{14} C_FS + \varepsilon_2$$

$$\text{Equation 3: } TBP = \alpha_3 + \beta_{15}IAS_i + \beta_{16}PIA + \beta_{17}CBRa + \beta_{18}AIATa + \beta_{19}OIAu + \beta_{20}C_FA + \beta_{21}C_FS + \varepsilon_3$$

$$\text{Equation 4: } SC = \alpha_4 + \beta_{22}IAS_i + \beta_{23}PIA + \beta_{24}CBRa + \beta_{25}AIATa + \beta_{26}OIAu + \beta_{27}C_FA + \beta_{28}C_F + \varepsilon_4$$

$$\text{Equation 5: } SC = \alpha_5 + \beta_{29}FPC + \beta_{30}SOE + \beta_{31}TBP + \beta_{32}C_FA + \beta_{33}C_FS + \varepsilon_5$$

$$\text{Equation 6: } FP = \alpha_6 + \beta_{34}IAS_i + \beta_{35}PIA + \beta_{36}CBRa + \beta_{37}AIATa + \beta_{38}OIAu + \beta_{39}C_FA + \beta_{40}C_FS + \varepsilon_6$$

$$\text{Equation 7: } FP = \alpha_7 + \beta_{41}FPC + \beta_{42}SOE + \beta_{43}TBP + \beta_{44}C_FA + \beta_{45}C_FS + \varepsilon_7$$

$$\text{Equation 8: } FP = \alpha_8 + \beta_{46}SC + \beta_{47}C_FA + \beta_{48}C_FS + \varepsilon_8$$

4. Results and Discussion

Descriptive statistics and a correlation matrix for the variables are shown in Table 2. Correlations between the variables were in the range 0.204 - 0.796 meaning that multicollinearity is not a problem since these correlations were less than 0.80 (Hair et al., 2011), and the maximum *VIF* was 3.859 (see Table 3), which is below the cut-off value of 10 (Kutner, Nachtsheim, and Neter, 2008; Cohen et al., 2013)

Table 2
Pearson's Product-Moment Correlation Matrix for The Variables Measured

Variables	1	2	3	4	5	6	7	8	9	10
Mean	4.126	4.042	4.114	3.816	3.664	4.108	3.956	4.221	4.047	3.989
S.D.	.609	.634	.654	.732	.713	.634	.625	.608	.606	.561
1. IASi	1									
2. PIA	.796***	1								
3. CBRa	.756***	.765***	1							
4. AIATa	.680***	.681***	.716***	1						
5. OIAu	.410***	.476***	.529***	.473***	1					
6. FPC	.701***	.672***	.762***	.662***	.448***	1				
7. SOE	.745***	.653***	.723***	.701***	.369***	.770***	1			
8. TBP	.729***	.627***	.771***	.538***	.354***	.796***	.773***	1		
9. SC	.630***	.589***	.684***	.616***	.299***	.644***	.683***	.776***	1	
10. FP	.665***	.674***	.728***	.708***	.379***	.756***	.792***	.788***	.783***	1

***p<0.01 **Note:** internal audit system integration (IASi), participative internal audit (PIA), comprehensive business risk assessment (CBRa), advanced internal audit technology application (AIATa), outsourcing internal audit utilization (OIAu), fraud prevention competency (FBP), superior operational excellence (SOE), transparent business practice (TBP), stakeholder credibility (SC), and firm performance (FP); Two control variables: firm age (C_FA) and firm size (C_FS)

Table 3 presents the results of OLS regression analysis of the relationship of PIAS and its consequences (fraud prevention competency, superior

operational excellence, transparent business practice, stakeholder credibility, and firm performance).

Table 3
Results of OLS Regression Analyses

Independent Variables	Dependent Variable							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	FBP	SOE	TBP	SC		FP		
Constant (a)	-.040 (.092)	-.057 (.090)	-.101 (.089)	.008 (.104)	.044 (.092)	-.069 (.091)	-.030 (.079)	-.131 (0.082)
IASi	.153 (.116)	.376*** (.113)	.336*** (.112)	.130 (.131)		.230** (.115)		
PIA	.098 (.109)	.001 (.106)	.001 (.105)	.057 (.122)		.191* (.107)		
CBRa	.418*** (.117)	.219* (.114)	.581*** (.113)	.432*** (.132)		.344*** (.115)		
AIATa	.162* (.092)	.293*** (.089)	-.111 (.089)	.235** (.104)		.319*** (.091)		
OIAu	.037 (.072)	-.046 (.070)	-.048 (.070)	-.122 (.081)		-.065 (.071)		
FBP					-.029 (.108)		.189** (.093)	
SOE					.222** (.102)		.379*** (.088)	
TBP					.637*** (.110)		.329*** (.094)	
SC								.788*** (.055)
C_FA	-.027 (.123)	-.014 (.120)	.015 (.119)	-.125 (.139)	-.094 (.122)	-.078 (.122)	-.050 (.105)	.093 (.109)
C_FS	.148 (.129)	.182 (.125)	.274** (.125)	.128 (.145)	-.015 (.130)	.293** (.127)	.149 (.122)	.268** (.115)
Adjusted R ²	.604	.624	.628	.495	.604	.614	.707	.495
Maximum VIF	3.859	3.859	3.859	3.859	3.394	3.859	3.394	1.053
aBeta coefficients with standard errors in parenthesis, *** p < 0.01, **. p < 0.05, * p < 0.10								

Note: internal audit system integration (IASi), participative internal audit (PIA), comprehensive business risk assessment (CBRa), advanced internal audit technology application (AIATa), outsourcing internal audit utilization (OIAu), fraud prevention competency (FBP), superior operational excellence (SOE), transparent business practice (TBP), stakeholder credibility (SC), and firm performance (FP); Two control variables: firm age (C_FA) and firm size (C_FS)

The results in Table 3 show that internal audit system integration has a positive effect on superior operational excellence (H1b: $\beta_8 = 0.376$, $p < .01$), transparency business practice (H1c: $\beta_{15} = 0.336$, $p < .01$), and firm performance (H1e: $\beta_{29} = 0.230$, $p < .05$). In contrast, internal audit system integration has no significant impact on fraud prevention competency (H1a: $\beta_1 = 0.153$, $p > .10$) and stakeholder credibility

(H1d: $\beta_{22} = 0.130$, $p > .10$). This indicates that the internal audit system enables an organization to improve operational processes. For instance, external audit fees will be reduced if the work of external auditors is founded on a firm's internal audit system (Morrill and Morrill, 2003). Internal audit system integration thus helps to connect the role, scope, practice and objectives of internal auditing, while setting

the benchmark for professional practice. Moreover, it reveals a firm's transparency systems established to ensure compliance with the policies, procedures, plans, regulations, and laws which Ramamoorti (2003) finds that it has a significant effect on operations and reports of firms, in particular firm performance (Carmeli and Tishler, 2004). **Thus, hypothesis 1 was partially supported.**

Besides, the results demonstrate that participative internal audit significantly and positively affect firm performance (H2e: $\beta_{30} = 0.191$, $p < .05$). The finding consistent with Chong, Eggleton, and Leong (2005) indicates that participation reflects people's trust and willingness to participate which has an influence on performance. This means that participation can enrich exchanging of information usefulness; and it encourages individuals and groups to get involved in the strategic decision-making processes (Glass, 1979). Greenwood (2007) has indicated that employee participation has an influence on production capacity which significantly effects on firm performance. Significantly, the degree of participation in planning, evaluating results, and generating alternatives has led an organization to the best performance (Black and Gregersen, 1997). In contradistinction, results showed no significant effect of participation on fraud prevention competency (H2a: $\beta_2 = 0.098$, $p > .10$), superior operational excellence (H2b: $\beta_9 = 0.001$, $p > .10$), transparency business practice (H2c: $\beta_{16} = 0.001$, $p > .10$), and stakeholder credibility (H2d: $\beta_{23} = 0.130$, $p > .10$). **Hence, hypothesis 2 was only partially supported.**

The hypothesis testing in Table 3 reveals that comprehensive business risk assessment has a positive impact on fraud prevention competency (H3a: $\beta_3 = 0.418$, $p < .01$), superior operational excellence (H3b: $\beta_{10} = 0.219$, $p < .10$), transparency business practice (H3c: $\beta_{17} = 0.581$, $p > .10$), stakeholder credibility (H3d: $\beta_{24} = 0.432$, $p < .01$), and firm performance (H3e: $\beta_{31} = 0.344$, $p < .01$). These results are consistent

with McNamee and Selim (1998) who find that the concepts of risk-based internal auditing help organizations to evaluate risk and link them to business objectives effectively and systematically (DeLoach, 2000). Additionally, the risk assessment process has reflected management effectiveness (Haimes, 2005) and the level of fraud prevention strategy of an organization (Trotman and Wright, 2012), and has helped to leverage an organization's capabilities for operational excellence and transparency in business practices (Pennywell, 2009). As found by Chang et al. (2008), risk assessment was able to reduce the costs of an internal audit process and enhance fraud prevention (Ciccone, 2006), which has improved performance (Pagach and Warr, 2010). **Therefore, hypothesis 3 was strongly supported.**

Regarding application of advanced internal audit technology, the results indicate significant effects on fraud prevention competency (H4a: $\beta_4 = 0.162$, $p < .10$), superior operational excellence (H4b: $\beta_{11} = 0.293$, $p < .01$), stakeholder credibility (H4d: $\beta_{25} = 0.235$, $p < .05$), and firm performance (H4e: $\beta_{32} = 0.319$, $p < .01$). This was consistent with Lee, Kim and Phaal (2012), who have suggested that technology application reflects an organization's credibility, which has been shown to assist an organization to rapidly access information, reduce its costs for business, and increase its revenue (Porter, 2001). Importantly, high information technology investment (e.g., Test Facility, Test Data, and Generalized Audit Software) has been able to effectively prevent both external fraud and internal fraud (Shaikh, 2005). This means that application of technology in the internal audit process contributes to operational excellence and superior performance. By the same token, there was no significant impact on transparent business practice (H4c: $\beta_{18} = -.111$, $p > .10$). **However, hypothesis 4 was largely supported.**

Surprisingly, outsourced internal audit utilization had no significant impact on fraud prevention competency (H5a: $\beta_5 = 0.037$, $p > .10$), superior operational excellence (H5b: $\beta_{12} = -0.046$, $p > .10$), transparency business practice (H5c: $\beta_{19} = -0.048$, $p > .10$), stakeholder credibility (H5d: $\beta_{26} = -0.122$, $p > .10$), and firm performance (H5e: $\beta_{33} = -0.065$, $p > .10$). This is because the firms assert that few can understand the internal audit system of firms more than company insiders. Although the effectiveness of performance audit increases when organizations use an outsourced service, satisfactory internal audit outcome decreases (Fitoussi and Gurbaxani, 2012). Besides, outsourcing services also build frustration from endless service cost payments and loss of control over their IT (Willcocks and Cullen, 2013). Moreover, outsourcing providers can lead to a loss of skills in strategically important areas of an organization (McIvor, 2013). **Hence, hypothesis 5 was rejected.**

According to the evidence in Table 3 points out that FPC has a positive influence on firm performance (H6b: $\beta_{41} = 0.189$, $p < .05$). In accordance with Montague's (2010) findings, it shows that fraud prevention can enable the firms to achieve business goals by increasing revenue, decreasing costs, and reducing losses. Similarly, Krummeck (2000) has stated that fraud prevention, especially proactive fraud management and communication anti-fraud policies, lead to opportunity for banks to strengthen and advocate customer trust through demonstration of an organization's knowledge and competence towards fraud prevention. For the effect on fraud prevention competency and stakeholder credibility, there is no significant correlation between such variables (H6a: $\beta_{36} = -0.029$, $p > .10$). **Thus, Hypothesis 6 was partially supported.**

In addition, SOE has positive effects on stakeholder credibility (H7a: $\beta_{37} = 0.222$, $p < .05$) and firm performance (H7b: $\beta_{42} = 0.379$, $p < .01$). This is consistent with Day et al. (2008) who reveal that operational

excellence drives on an organization's management approach that gives rise to business growth. Exploring the methodology of operational excellence by Asif et al. (2010) it indicates that manufacturing practices is developed by an organization over time. It makes practice subsequently change with a positive impact on performance. Thus, operational excellence becomes a major factor that contributes to create competitive advantage, which leads organization to achieve goals in all situations (Duggan, 2011). Additionally, operational excellence also increases the level of employees' trust in management; and it ensures that practice operational designs meet stakeholder's different needs and firm value (Hurley, Gong, and Waqar, 2014). **As a result, hypothesis 7 was strongly supported.**

Moreover, the results also indicate that TBP has a significantly positive effect on stakeholder credibility (H8a: $\beta_{38} = 0.637$, $p < .01$) and firm performance (H8b: $\beta_{43} = 0.329$, $p < .01$). The results are in the line with Myers and Majluf (1984) who indicate that organizations with greater degree of transparent are more likely to expose equity than debt; since equity is more sensitive to information in a capital market than debt. Likewise, Stiglitz (2003) points out that the market will rapidly respond to good information; therefore, transparency is a key tool that shed light on stakeholders' credibility. Osborn (2004) asserts that building transparency by reducing the opportunity of fraud and corruption is the best way to increase stakeholder's trust (Rawlins, 2008). Anderson, Duru, and Reeb (2009) find empirically that organization with voluntary disclosures will obtain superior performance and serves as the strategy for correcting poor performance. **Therefore, hypothesis 8 was strongly supported.**

Finally, the finding demonstrates that SC has a positive impact on firm performance (H9: $\beta_{46} = 0.788$, $p < .01$). Li et al. (2008) indicate that maxim-based trust has a significantly positive effect on firm

performance. Trust causes exchanges partners for pursuing governance mechanisms that entails improving firm's outcomes (McEvily, Perrone, and Zaheer, 2003). As in King, Lenox, and Barnett (2002), they find that the reputable stakeholder can enhance credibility that entails superior performance by which Tzafrir (2005) confirmed that level of firm performance increased when stakeholder trust is high. The credibility of stakeholder is then good because it helps an organization to effectively achieve its goals (Lins, Servaes, and Tamayo, 2015). **Hence, hypothesis 9 was strongly supported.**

5. Contribution

- Theoretical Contribution

This study offers an insight into prior knowledge and relevant literature of proactive internal audit strategy. The results demonstrate that the differences of resources and existing capabilities of the organization can create a competitive advantage for achieving superior performance. These findings empirically supported the concept of dynamic capability theory.

- Managerial Contribution

The results indicate that PIAS is a powerful instrument that can enhance organization's capabilities; and it becomes an important strategy for developing and improving internal audit system to increase the levels of competitive advantage and lead an organization to sustain success in the long run. As a result, the organization should support the strategic management approach by focusing on enhancing the internal audit function such as providing appropriate resources and improving risk management process such as using audit software.

6. Limitation and Suggestion for Future Research

In this study, it does not take into account the aspect of a racial diversity of respondents, which may influence the

decision-making in an organization's strategic choice, in particular the perception of using different PIAS in their business. The results also show that some hypotheses are not significant; particularly, outsourcing internal audit utilization has no significant impact on FPC, SOE, SC, and firm performance. As a result, this issue needs to be re-investigated the relationships among such variables. Besides, organizational culture type (clan, hierarchy, adhocracy, and market; see Cameron and Quinn, 2006) need to be explored in future research. Moreover, future research needs to expand the research contributions and to verify generalizability by collecting data from other samples, such as audit committees, internal audit staff, and governmental auditors in order to increase the reliability of research findings

7. Conclusion

The key purpose of the study was to investigate PIAS - internal audit system integration, participative internal audit, comprehensive business risk assessment, advanced internal audit technology application, and outsourcing internal audit utilization - which affects fraud prevention competency, superior operational excellence, transparent business practice, stakeholder credibility and firm performance. The results suggest that several factors have a significant impact on consequences for firm performance. These factors include: proactive internal audit strategy: internal audit system integration, participative internal audit, comprehensive business risk assessment, and advanced internal audit technology application. However, outsourcing internal audits does not have any significant consequences for organizational functionality. Additionally, fraud prevention competency, superior operational excellence, transparent business practice, and stakeholder credibility have a strongly positive effect on stakeholder credibility and firm performance.

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