International Journal of Auditing
Int. J. Audit. ••: ••–•• (2012)
doi:10.1111/j.1099-1123.2012.00450.x

Internal Audit Attributes and External Audit's Reliance on Internal Audit: Implications for Audit Fees

Zulkifflee Mohamed,[1] Mazlina Mat Zain[2],
Nava Subramaniam[3] and Wan Fadzilah Wan Yusoff[2]
[1]*Universiti Tun Abdul Razak (UNIRAZAK)*
[2]*Multimedia University, Malaysia*
[3]*Deakin University*

This study aims to examine two aspects of internal audit quality, namely internal audit competency and internal audit contribution to financial statement audits. Consistent with the *substitution view*, this study predicts a negative relationship between the competency aspects of internal audit (the tenure of the existence of internal audit in the organization, internal audit staff expertise in IT and computer skills, training hours, internal audit staff professional certifications in accounting and auditing, and internal audit staff experience in auditing) and audit fees. Second, this study tests whether the contribution of internal auditors to financial statement audit reduces audit fees. The data analysis is based on a cross-sectional regression model with observations of 73 public-listed firms in Malaysia, which include publicly available data matched with survey responses from their internal and external auditors. The results of the study suggest that the competency of internal audit, namely the tenure of the existence of internal audit in the organization, training, internal audit staff prior experience in auditing and accounting, and certifications are associated with lower audit fees. Our findings for both aspects of internal audit quality (competency and internal audit contribution) lend support to the substitution view for explaining the links between internal audit quality and audit fees.

Key words: Internal audit function, internal audit competency, internal audit contribution and external audit fees

SUMMARY

Depending on the assessment of external auditors on the quality of the internal audit function, professional standards permit the contribution of internal auditors to external audit work. Yet, the economic effect on this nexus remains unclear. On

Correspondence to: Mazlina Mat Zain, Associate Professor, Faculty of Management, Multimedia University, 63100 Selangor, Malaysia. Email: mazlina.zain@mmu.edu.my

ISSN 1090-6738

one hand, the 'substitution theory' propounds that a more active internal audit function would encourage external auditors' reliance on such a function, reduce duplication of audit effort leading to potential cost savings and lower external audit fees. By contrast, the 'complementary perspective' suggests that greater investment in internal audit is likely to be associated with higher audit fees. Thus, this study examines the relationship between two aspects of internal audit quality. namely internal audit competency and internal audit contribution to financial statement audit and external audit fees.

Data was obtained from 73 survey respondents (Chief Audit Executive) of large public listed firms in Malaysia and their respective external auditors matched with publicly available information from annual reports for the year 2005. OLS regression analyses show that both aspects of internal audit quality reduce audit fees paid to the external auditors. In particular, the results indicate that the tenure of internal audit existence in the organization, training, and firms with higher proportion of internal audit staff having professional certifications and prior experience in audit and accounting pay lower audit fees. Furthermore, we also find that firms pay lower audit fees when external auditors place higher reliance on the internal audit works. Our results lend support to substitution theory in explaining the links between internal audit, external audit and audit fees. Overall, from a practical perspective, our study further highlights the need for organizations to emphasize higher quality audits and also for firms to encourage coordination between internal and external auditors as this could result in potential cost savings.

1. INTRODUCTION

The internal audit (IA) function has become well recognized as one of the key governance mechanisms, and that role has evolved over time. Despite its earlier role as a kind of company 'watchdog', the nature of IA processes today has expanded and typically encompasses a consulting role, including risk management, control assurance and compliance work. This is reflected by the new definition of internal auditing by the Institute of Internal Auditors (IIA) (2011) where it is defined as:

> 'An independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes.'

More recently, in Malaysia, given the new set of rules being imposed on public listed companies under the Bursa Listing Requirements (Bursa Malaysia, 2009), it is likely that the IA function will continue to increase in importance. For instance, the new revised Bursa Listing Requirements have mandated the establishment of the IA function and also require the internal auditor to report directly to the audit committee. These requirements re-emphasize the importance of the IA function in supporting the organization to comply with these new requirements, as well as the role that the internal auditor could play in terms of enhancing the quality of the IA and their involvement in the preparation of the financial statement audit.

While the roles of internal and external audit are distinct, there are many opportunities for coordination and cooperation between these two functions that may yield synergistic outcomes, such as higher quality audits and economic benefits. In fact, professional auditing standards acknowledge the potential contribution that an IA function can provide to the external audit (SAS No. 65, AICPA, 1991; ISA No. 610, MIA, 2000; PCAOB, 2007). This contribution can be made by internal auditors either working as assistants under the direct supervision of external auditors or independently performing various audits and reviewing work throughout the audit year on which the external auditors may rely (SAS No. 65, AICPA, 1991; Maletta, 1993). However, a key factor in the consideration of the use of IA in the external audit process is the quality of IA. Both professional auditing standards and prior studies (see SAS No. 65, AICPA, 1991; ISA No. 610, MIA, 2000; Felix, Gramling & Maletta, 2001; IIA 2009; Prawitt, Smith & Wood, 2009) suggest IA quality encompasses specific attributes of the organization and parties performing IA activities (e.g., competency of IA staff) and external auditors are to first consider the quality of IA function in terms of objectivity, competence and work performed by the IA function before relying on the work of the internal auditor. We investigate the relation between two aspects of IA (competency and IA contribution to financial statement audit) and audit fees. Consistent with the 'substitution perspective', we predict that the quality of IA function will

be enhanced by firms hiring IA staff with certifications in auditing and accounting, prior experience in auditing, computer and IT skills, and when the IA function has longer tenure in the organization, and this in turn may reduce the amount of external audit fees charged by external auditors. Likewise, we expect that, as the quality of IA grows stronger, external auditors are more likely to utilize the work of IA and hence reduce the amount of audit work that has already been covered by the IA.

Our study involves observations of 73 publicly listed firms in Malaysia which include publicly available data matched with survey responses from internal and external auditors. The sample of external auditors involves all the 'Big N' accounting firms and their clients from nine different industries. Data analysis is based on regression models using cross-sectional data. The results of this study initially reveal that the two aspects of IA attributes (namely, IA competence proxied by the tenure of IA existence in the organization, training attended by the IA staff, IA staff prior experience in auditing and IA staff professional certification in auditing and accounting, and the external auditors' assessment on the extent of the IA contribution to external audit) reduce external audit fees thus providing support for the 'substitution perspective'.

This paper contributes to the internal auditing and audit fees literature in the following ways. First, data utilized in this study are collected from three sources. The IA attributes data were taken from the internal auditors' responses, whereas the assessment regarding the external auditor's reliance on the IA work was carried out by the external auditors and, finally, the financial data for the audit fees model for the matching firms are hand collected from the annual reports. In contrast to Felix *et al*.'s (2001) study, which requested the internal auditors of the firms to forward the external auditors' questionnaire to their external auditors (or partner-in-charge) of the matching client firms, we asked the chief internal auditors of the firms to provide the names of the partners in charge of the financial statement audit of the firms. By doing so, we felt that we would encourage more responses from both external and internal auditors as the process of delivering the external auditor's questionnaires was made much simpler.

Second, unlike other prior studies, such as Stein, Simunic and O'Keefe (1994), Felix *et al*. (2001) and Ho and Hutchinson (2010), we examine the relationship between IA and audit fees in more detail, as both aspects of IA quality, i.e., IA competency and IA contribution to financial statement audits, are included in our analysis.[1] In particular, we use five IA attributes related to IA competency, namely the tenure of IA existence in the organization, IA staff training, IA staff skills in IT and computing, IA staff experience in auditing and accounting and IA staff professional auditing and accounting certifications to reflect high quality IA function, and the external auditor's assessment of the extent of their reliance on the IA work. While our findings are similar to those reported by Felix *et al*. (2001), whereby a significant and negative association was found between external auditors' reliance on IA and audit fees, the current study provides additional evidence on the competency aspects of the IA function, especially in terms of the expertise of the IA staff and the maturity of the IA function. In particular, the findings of the study further suggest that the reduction of external audit fees are not derived mainly from the contribution that IA makes to the financial statement audits alone, but are also due to the competency aspects of the IA function.

Finally, this study also contributes to the corporate governance literature by examining the relationships among IA quality, external auditors' reliance on IA work and audit fees within a developing capital market setting, i.e. Malaysian publicly listed firms. In doing so, such evidence potentially highlights the importance of the interface between the two key governance mechanisms, i.e. external and internal audits from a broader international context.[2] No doubt, the importance of IA as a key governance function is acknowledged in various professional standards and corporate governance guidelines in Malaysia. For example, the listing rules of Bursa Malaysia (formerly known as the Kuala Lumpur Stock Exchange or KLSE) require external auditors to liaise with the IA. Furthermore, in 2002 the Institute of Internal Auditors in Malaysia (IIA Malaysia) launched 'The Guidelines on the Internal Audit Function for Malaysian Companies' with the aim of guiding best practice for IA practitioners and to strengthen corporate governance (IIA Malaysia, 2002).[3,4] In 2007, the revised version of the Malaysian Code of Corporate Governance was released and a key amendment was the mandatory requirement imposed for the board to establish an IA function and to identify a head of IA who reports directly to the audit committee.

Nonetheless, the IA profession in Malaysia is arguably still maturing, and this study provides insights into the importance of IA quality for audit fees in such setting.

The remainder of this paper is organized as follows. The next section provides a literature review of prior studies on IA and audit fees, followed by the development of six hypotheses. Subsequently, the following section details the research method and data analysis. The final two sections comprise discussions of the results and conclusions of the study, including limitations and suggestions for future research.

2. BACKGROUND AND HYPOTHESES

2.1 Prior studies

Audit fees reflect an economic cost to organizations, and over the years a long line of research has developed examining the determinants of audit fees. Early work by Simunic (1980) and numerous subsequent studies (such as those by Francis & Simon, 1987; Chan, Ezzamel & Gwilliam, 1993; Craswell, Francis & Taylor, 1995; Collier & Gregory, 1996; Gul, 2006) suggest that audit fees tend to vary with the size, complexity, riskiness and other characteristics of the audited entity.

An emerging research stream in this area focuses on the relationship between internal control and audit fees. This research stream is of direct interest to this study as there are two competing theories (i.e., substitution versus complementary theories) that have been proposed for explaining this relationship. The substitution theory suggests that an increase in internal controls will reduce audit fees because one type of governance mechanism will substitute for the other. For instance, according to the substitution theory, more active or better quality internal controls are expected to reduce external audit monitoring efforts and thus reduce audit fees. By contrast, the complementary theory proposes that the extent and scope of internal controls will be associated positively with audit fees. Arguably the rationale for the proposed positive association is that increased internal control initiatives are seen to reflect a management ethos that values higher quality corporate governance and such initiatives will also then demand better or more external audit services which in turn will result in higher audit fees (Hay, Knechel & Ling, 2008).

Our literature review suggests that while extensive research has been undertaken to identify the determinants of external audit fees, there is scant and mixed evidence on the effects of IA especially on the aspect of IA competency, contribution of IA to external audit and audit fees.[5] While the potential for cost savings in terms of the reduction of audit fees through external auditors' utilizing the IA work has been acknowledged by the Professional Auditing Standards and prior literature (Wallace, 1984; AICPA, 1991; Felix *et al*., 1998), only four studies have directly examined the association between IA contribution and external audit fees (Elliot & Korpi, 1978; Stein *et al*., 1994; Felix *et al*., 2001; Prawitt, Sharp & Wood, 2010). These studies use archival data to measure control variables and surveys to measure the level of reliance on the IA. Consistent with the substitution perspective, Felix *et al*. (2001) and Elliot and Korpi (1978) find that reliance measures reported by external auditors are significant and negatively related to external audit fees.[6] However Stein *et al*. (1994) do not support this relationship, although the internal audit reliance measure is also reported by external auditors. Possibly the lack of significance is due to the use of a restricted dichotomous measure of IA contribution. More recently, the results of Prawitt *et al*. (2010) suggest that audit fee reductions are more strongly associated with direct assistance of IA rather than external auditors relying on the IA work.

Overall, prior studies that directly measure the IA contribution using the external auditors' assessment have consistently supported a negative relation.[7] A basic assumption is that better IA functions will induce greater reliance by external auditors on such functions, particularly through a reduction in the substantive work by external auditors, resulting in lower audit fees (Simunic, 1980; Felix *et al*., 2001). Simunic (1980, 1984) contended that audit clients may substitute internal controls for external auditing if there is monopoly pricing, or substitute external auditing for internal control when knowledge spillovers reduce the cost of external auditing.

On the other hand, given that the quality of IA is not easily observable, prior studies have used several proxies to measure IA quality, e.g. IA existence (Wallace, 1984; Anderson & Zeghal, 1994; Knechel & Willekens, 2006; Hay *et al*., 2008) and IA size (Goodwin-Stewart & Kent, 2006; Hay *et al*., 2008). Overall, their empirical findings largely indicate a positive association between IA and audit fees, leading to the contention that firms committed to strong corporate governance are not

only likely to engage in greater levels of IA but will also be prepared to pay more for the external audit (Goodwin-Stewart & Kent, 2006; Hay *et al*., 2008). This alternative explanation argues that instead of substituting one type of internal control for another (say, IA for external audit), organizations may seek to concurrently increase their investment in all types of internal controls and governance mechanisms.[8]

In summary, the results of past studies reveal mixed results and most of these studies only investigate one aspect of IA, either directly measuring the contribution of IA using external auditors' responses or by using IA attributes as a proxy to measure IA quality. Our study complements past studies by examining the relationship between IA and audit fees in more detail via three sources: first, by using five measures of IA competence (information collected from internal auditor's respondents); second, by directly measuring IA contribution to financial statement audit (level of IA contribution recorded from external auditor's responses) and financial data (archival). Based on SAS 65 and findings from studies by Felix *et al*. (2001), Ho and Hutchinson (2010) and Prawitt *et al*. (2010), we expect external audit to be inversely related to IA competency and contribution made by the IA to the financial statement audit.

2.2 *Internal audit attributes and audit fees*

Prior empirical evidence indicates that the extent to which external auditors rely on the internal audit work will be greater when the IA department possesses the characteristics associated with competency (Messier & Schneider, 1988; Ho & Hutchinson, 2010). These studies focus on specific criteria used to assess the competency of the IA function, including how long the IA function has been present in the organization (Arena & Azzone, 2009), IA training programs and professional certification (Brown, 1983; Mat Zain, Subramaniam & Stewart, 2006; Ho & Hutchinson, 2010) and IA experience in auditing and accounting (Messier & Schneider, 1988; Suwaidan & Qasim, 2010).

Although, there is no study that directly links the relationship between the tenure of IA existence in the organization and the external auditors' reliance on the IA work and audit fees, there are numerous studies that have looked at the impact of firm age on the level of firm performance. Overall, the results of these studies indicate that the age of the firm contributes positively to firm efficiency (Arrow, 1962), increases firm life expectancy (Dunne, Robert & Samuelson, 1989), and such firms enjoy higher profit and value (Hopenhayn, 1992). Furthermore, these studies also suggest that older firms have more knowledge, take the benefits of learning, and overcome the deficiencies of newness and ultimately perform better (Majumdar, 1997). This is expected as older firms obtain better overall firm performance by investing more in research and development, hiring more expertise, train their employees as well as learn from other firms in the same and other industries over an extended period of time (Bahk & Gort, 1993). Overall, the results from prior studies suggest that the older the firm, the greater the potential for the firm to learn and improve its day-to-day operation, especially its expertise in work performance and decision making, improving operational efficiency, which in turn, reduces overall operational cost and enhances the firm quality leading to enhanced performance. Extrapolating the same argument to the relationship between the existence (tenure) of the IA function and audit fees, this study argues that the longer the tenure of IA existence in one's organization (in years), the more mature and competent will be the IA unit, the IA unit that has been established longer may have invested more in hiring, which leads to a better quality IA function. As a result, external auditors will become more susceptible to quality of IA and thus charge lower audit fees.

Overall, the results of past studies suggest that the auditor should have professional certification/qualifications if they are to lead a good quality audit (Cahill, 1994; Brody, Golen & Reckers, 1998), as a functional department with more staff with professional qualifications in accounting, auditing and finance will undertake duties more efficiently, as it is reasonable to expect that staff members with such qualifications would be more competent in discharging their responsibilities. Likewise, Beasley *et al*. (2000) find that the IA function provided by more staff with professional qualifications in accounting or auditing are more likely to detect or deter financial statement fraud. Recently, Prawitt *et al*. (2009) reveal that IA function quality is negatively associated with earnings management in the sense that the IA function with more staff having professional certification/qualifications are likely to have a better understanding of issues and indicators of management bias in accruals. In summary, these

studies concur that one of the criteria to assess IA competency is based on their professional certification (e.g., CIA (Certified Internal Auditor), CPA (Certified Public Accountant), CA (certified accountant) or CFA (Chartered Financial Analyst); Brown, 1983; Archambeault, DeZoort & Holt, 2008).

Moreover, the rapid development and complexity of businesses processes nowadays require the internal auditor to be equipped with skills in IT and computing to ensure high quality audits. Such knowledge and skills are important as internal audit staff are expected to understand and identify risks, especially with regard to highly sophisticated IT systems and at the same time also to be able to utilize their knowledge to ensure completeness of internal audit processes. The IA function has to provide increased assurance by providing IT control assessment within the system of internal control (Hass, Abdolmohammadi & Burnaby, 2006) and, if the appropriate IT controls are selected and implemented properly on the basis of the risks identified, then a methodology to continuously monitor IT control effectiveness and validity could provide the assurance needed (Le Grand, 2005). Also, by having the skills and ability in IT and computing, internal auditors may improve their ability to review the systems and information, and this allows them to manage their activities more effectively. Automated tools enable internal auditors to increase individual productivity and enhance the efficiency of the IA function. Based on the preceding discussions, it is suggested that the knowledge and skills of IA in IT and computing enable the efficient utilization of the internal audit process and thus enhance the quality of the IA function.

Prior studies also indicate that external auditors deemed experience in the IA function to be the most important criterion describing competence (Messier & Schneider, 1988). Experience is important for internal auditors, as many oversight judgments are subjective and managerial action may have more pervading effects than those that catch the eye. Therefore, in the absence of objective criteria, IA staff that do not possess prior experience in auditing (or less experience) are more likely to make suboptimal decisions in primary oversight domains, for example in accounting and auditing areas. In particular, inexperienced IA staff may lack the technical knowledge needed and not understand the wide range of existing and potential problems, nor possess necessary problem-solving skills (DeZoort, 1998). In addition, IA staff with prior experience and expertise in auditing are also expected to provide more valuable input towards improving the internal controls of the organization (Brody *et al*., 1998) and more experienced IA staff identify unethical behavior more clearly than their less experienced counterparts (Larkin, 2000).

Overall, the preceding discussion suggests that the competency of the IA is associated with higher quality IA function. Thus, it is expected that with such competency (high quality audit), the external auditor is able to reduce the level of audit effort by relying more on the IA work. Based on that argument, we propose that firms having more IA staff with these criteria, namely IA certification/professional qualifications, prior experience in accounting and auditing, and IT skills and firms that invest more in training their IA staff are more likely to be associated with lower external audit fees. This leads to the following hypotheses proposed in the alternate form.

Hypothesis 1: The longer the tenure of the IA function in the organization, the lower the audit fees.

Hypothesis 2: The longer the hours of training attended by the IA staff, the lower the audit fees.

Hypothesis 3: Firms with IA function that have a higher proportion of staff with ICT skills are associated with lower audit fees.

Hypothesis 4: Firms with IA function that have a higher proportion of staff with prior experience in auditing are associated with lower audit fees.

Hypothesis 5: Firms with IA function that have a higher proportion of staff with professional certification in auditing and accounting are associated with lower audit fees.

2.3 The external auditors' reliance on IA and audit fees

According to the substitution view, the external auditors may be able to substitute or use work completed by the IA, and this in turn may have the implication of lowering audit fees. Our literature review suggests only three studies to date have developed constructs that directly assess IA contribution to external audit and subsequently used such constructs to examine its relationship

with audit fees (Elliot & Korpi, 1978; Stein *et al*., 1994; Felix *et al*., 2001).

The early study by Elliot and Korpi (1978) measured IA contribution to external audit using a continuous scale and found that the percentage reduction of audit scope as a result of IA contribution was significant in predicting audit fees. Stein *et al*. (1994) conceptualized the level of IA contribution by using a dichotomous scale from the perspective of the level of assistance provided by internal auditors on the external audit. The level of assistance provided was categorized under two classifications: 'extensive/moderate' and 'limited/none'. The results, however, indicated that the level of assistance provided by the internal auditors was not significantly related to external audit fees. It is possible that the lack of significance may relate to the limitations in the measurement scale used for IA contribution, whereby only two classifications were provided. Felix *et al*. (2001) also highlight that the measure does not fully capture both forms of IA contribution, i.e. level of assistance provided by internal auditors as well as the extent of reliance external auditors may have placed on work undertaken independently by the internal auditors throughout the audit year. Thus, in their study, Felix *et al*. (2001) measured IA contribution to external audit based on the external auditors' assessment of using a continuous scale ranging from 0 to 100% with the aim of capturing both these dimensions,

The overall aim of the study by Felix *et al*. (2001) was to examine the contribution of IA to external audit as well as the factors influencing this contribution. The study involved a questionnaire survey of 603 of the Fortune 1000 firms with two questionnaires sent to each firm. One questionnaire set was completed by the internal auditor of the firm and the other by the external auditor. A total of 70 matched responses were derived from firms in non-financial services sectors. Two separate models were provided by Felix *et al*. (2001). The first model indicated a significant and negative association between internal audit contribution to external audit and audit fees, thus supporting Elliot and Korpi's (1978) findings. The second model revealed that IA contribution to external audit was a function of both its quality and its availability to assist external auditors, and that inherent risk was a significant moderating variable affecting the influence of the availability of IA and the level of coordination between the two functions on internal audit contribution to IA. Interestingly, IA quality had a direct and positive effect on such contribution and was not dependent on the level of inherent risk.

More recently, Prawitt *et al*. (2010) examine whether the reduction of audit fees is due mainly to the reliance of external auditors on the IA or by the direct assistance that the internal audit could provide during the financial audit. This study supplements previous studies since the data utilized for this study was based on a combination of data gathered by the IIA from annual surveys of IA function and data available on Compustat and Audit Analytics databases between 2001 and 2006. This issue is important since prior archival and experimental studies alone are limited in their ability to capture the potential IA contribution to external audit via internal auditors' direct assistance during the audit (Prawitt *et al*., 2010). The final sample of this study is 572 firm-year observations that contain responses from 235 distinct companies from 47 different two-digit SIC industry code listings. The results of the study indicate that the use of internal auditors as assistants is associated with lower audit fees but find only little evidence to support the idea that the amount of time internal auditors spend performing tasks of a financial nature is associated with audit fees.[9]

For the current study, we hypothesize a negative relationship between IA contribution to the external audit and audit fees. We expect the relationship to follow a substitution perspective, whereby opportunities for cost savings for firms are greater when external auditors rely more on the internal audit work. Thus, based on the above discussion, the final hypothesis for this study is as follows:

> **Hypothesis 6:** Higher reliance of external auditors on the IA work is associated with lower audit fees

3. DATA AND MODEL SPECIFICATION

3.1 Survey sample

Data in this study were obtained from survey questionnaires and publicly available information (see Table 1). The survey data consist of matching responses to questions that were designed for the head of the IA department and accounting partners responsible for conducting the financial statement audit at these firms. A total of 650 questionnaire packages containing a covering letter, the survey

Table 1: Sample descriptions and response rate

Description	*Sample*	*Response rate (%)*
Total number of questionnaires distributed	650	100
Total number of questionnaires received from IA respondents	106	16.46
Less:		
Companies that fully outsourced their IA function to external provider	(30)	(5)
Non-useable responses	(2)	(0.03)
Univariate outlier identified for audit fees variable (Case 11)	(1)	(0.15)
Total number of questionnaires received from external auditors (EA)	73	11.23
	73	11.23

Table 2: Respondent external audit firms

External audit firms	*Sample frequency*	*Sample distribution (%)*
PricewaterhouseCoopers (PWC)	46	63.01
Ernst & Young	12	16.44
KPMG Peat Marwick	9	12.33
Deloitte & Touche	6	8.22
	73	100

and reply pre-paid addressed envelopes were mailed to the head of the IA department of the publicly listed companies on the Bursa Malaysia Main Board in 2005.[10,11] Subsequently, the head of the IA departments were requested to enclose the name of partners who were in charge of their audits.[12] Once the names of partner and public accounting firms were identified, the matching questionnaire for external auditors was sent. A total of 73 completed questionnaires from both internal and external auditor respondents were received, yielding a response rate of 11.4 percent.

Tables 2 and 3 provide additional information on the firms with which the external and internal auditor respondents were associated. As detailed in Table 2, all the Big 'N' audit firms are represented in the sample, with the majority of respondents from PricewaterhouseCoopers and the remainder from other Big 'N' firms. Table 3 indicates that client firms represent nine industries

To address the possibility of non-response bias, the sample firms were compared with the total population of firms listed on Bursa Malaysia's Main Board. Columns (3) and (4) of Table 4 provide comparative descriptive data for the 73 respondent firms from our survey and the total population of firms listed on Bursa Malaysia's Main Board (650 companies). Overall, the respondent firms are not significantly different from the survey recipients from whom we did not obtain completed responses. The respondents firms are large economically significant entities and comparable in terms of their size, complexity, risk and profitability. On average, these firms have assets of Ringgit Malaysia (RM) 8,927.81 million, 33.79 subsidiaries, 6.5 foreign subsidiaries with current ratio of 2.766, return on assets and equity of 0.075 and 0.053, respectively, and the leverage ratio is around 1.307.[13]

3.2 The audit fee model

A cross-sectional regression model based on prior audit fee research (see Simunic, 1980; Gul, 2006) is used to examine the relationship between two aspects of IA, namely IA attributes which include the tenure of the IA function existence in the organization (*IATENURE*); training (*IATRAINING*); IA staff skills in computing and IT (*PROPICT*); IA staff audit experience (*PROPIAEX*); IA staff professional certification (*PROPCERT*) and IA contribution to financial statement audits (*IACONTRB*) and external audit fees.

$$LNFEES = \beta_0 + \beta_1 IATENURE + \beta_2 IATRAINING + \beta_3 PROPICT + \beta_4 PROPIAEXPER + \beta_5 PROPCERT + \beta_6 IACONTRB + \beta_7 LNASSETS + \beta_8 LNSUB + \beta_9 FOREIGN + \beta_{10} RECEIVABLES + \beta_{11} INVENTORY + \beta_{12} ROA + \beta_{13} CURRENT + \beta_{14} LEVERAGE + \beta_{15} OPINION + \beta_{16} TENURE + \varepsilon$$

The description of the variables is provided in Table 5, together with their predicted direction in the audit fee model.

3.3 Dependent variable

To test the hypotheses, we use ordinary least squares (OLS) regression models. The dependent

Table 3: Total companies vs respondent's companies

Industry classification	*Total companies*	*Sample frequency*	*Distribution population (%)*	*Sample distribution (%)*
Trading & Services	169	28	26.00	38.36
Industrial Product	162	13	24.92	17.81
Properties	93	8	14.30	10.95
Consumer Product	84	5	12.93	6.85
Construction	40	4	6.15	5.48
Plantation	37	3	5.70	4.11
Technology	31	2	4.78	2.73
Infrastructure Project	18	4	2.76	5.48
Finance	16	6	2.46	8.23
	650	73	100	100

Table 4: Comparison of survey recipients and survey respondents, mean (standard deviation)

Variables (1)	*Survey recipients (BMB Main Board) (2)*	*Survey respondents (3)*	*t-test (4)*	*p-value (5)*	
Asset ('000s)	5,981.27 (17,526.462) $n = 650$	8,927.81 (19,304.065) $n = 73$	–1.342	0.180	ns
Subsidiaries	21.59 (62.836) $n = 650$	33.79 (56.767) $n = 73$	–1.584	0.114	ns
Foreign subsidiaries	5.92 (44.50591) $n = 650$	6.50 (19.244) $n = 73$	–0.110	0.912	ns
Current ratio	8.6762 (86.20366) $n = 650$	2.7662 (4.17169) $n = 73$	0.585	0.559	ns
Return on assets (ROA)	0.022 (5.45207) $n = 650$	0.075 (0.18507) $n = 73$	–0.153	0.878	ns
Return on equity (ROE)	0.020 (0.86849) $n = 650$	0.0530 (36920) $n = 73$	–0.319	0.750	ns
Leverage ratio	0.704 (3.100) $n = 650$	1.307 (3.1429) $n = 73$	–1.568	0.117	ns

Notes:
n = number of firms for which information is provided from recipients and respondents
ns = not significant
t-statistics (adjusted for unequal variances, as appropriate) for test of equality means between 73 respondents (column 3) and the remaining 650 survey recipients for whom the completed surveys were not obtained. * $p < 0.01$, ** $p < 0.05$, *** $p < 0.10$ and ns: $p > 0.10$ (all are two-tailed).

variable is the audit fee which is measured by the value in RM of the audit fee paid by the firm to its auditor. Consistent with prior audit fee studies (Simunic, 1980; Francis & Simon, 1987; Felix *et al.*, 2001; Goodwin-Stewart & Kent, 2006) and the tests of normality, logarithmic transformation is applied to audit fees.

3.4 Experimental variables

The experimental variables for this study are the set of variables representing IA competence. These variables include the age of existence of the IA function in the organization (*IATENURE*); training (*IATRAINING*); the proportion of IA staff with

Table 5: Variables description and expected direction for audit fee model

Variable(s)	*Description and measurements*	*Predicted direction*	*Sources*
Dependent variable			
LNFEES	Audit fee paid by the client, as reported by internal auditor respondent (natural logarithm of audit fees used in regression model)	?	IA Survey and Annual Report
Panel A: Control variables			
LNASSETS	Total assets for client at the end of the fiscal year (natural logarithm used in regression model)	+	IA Survey and Annual Report
LNSUB	Total number of subsidiaries (natural logarithm used in regression model)	+	IA Survey and Annual Report
FOREIGN	Total number of foreign subsidiaries	+	IA Survey and Annual Report
RECEIVABLES	Ratio of receivables to total assets	+	IA Survey and Annual Report
INVENTORY	Ratio of inventory to total assets	+	IA Survey and Annual Report
ROA	Earnings before interest and tax divided by total assets	–	IA Survey and Annual Report
CURRENT	Ratio of total current assets to total current liabilities	–	IA Survey and Annual Report
LEVERAGE	Ratio of total liabilities to total assets	+	IA Survey and Annual Report
OPINION	External auditors report on clients financial statement (0 = unqualified, 1 = qualified)	+	EA Survey
AUDITORTENURE	Length of the auditor relationship with the client, in years	–	EA Survey
Panel B: Experimental variables			
IATENURE	The tenure (age) of internal audit existence in the organization, in years	–	IA Survey
IATRAINING	Average training hours for internal auditors in a year, in hours	–	IA Survey
PROPICT	Proportion of internal auditors with computer & IT skills to total number of internal audit staff	–	IA Survey
PROPIAEXPER	Proportion of internal auditors with auditing experience to total number of internal audit staff	–	IA Survey
PROPCERT	Proportion of internal auditors with accounting and auditing professional certification to total number of internal audit staff	–	IA Survey
IACONTRB	External auditors' assessment of percentage of IA contribution to financial statement audit. (0% = internal audit did not perform any of the work required to complete the audit to 100% = internal audit performed all of the work required to complete the audit)	–	EA Survey

computing and IT skills (*PROPICT*); the proportion of IA staff with accounting and auditing experience (*PROPIAEXPER*); the proportion of IA staff with accounting and auditing professional certification (*PROPCERT*) and the external auditor's assessment on the contribution of internal audit to financial statement audits (*IACONTRB*). The experimental variables related to the competency of IA were based on prior studies on auditors' assessment of the criteria of IA competence. For instance, IA training and professional certification (Brown, 1983; Beasley *et al*., 2000; Mat Zain *et al*., 2006; Ho & Hutchinson, 2010); IA staff prior experience in accounting and auditing (Messier & Schneider, 1988) and the external auditor's assessment of the contribution of IA to financial statement audit (*IACONTRB*) was adopted from Felix *et al*. (2001). *IACONTRB* was obtained from the external auditor

respondents comprising both the contribution made by internal auditors acting as assistants under direct supervision of the external auditors or by contributing relevant work to the external audit (financial statement audit) throughout the year.

3.5 Control variables

In recent years, a voluminous body of research into the determinants of audit fees has been conducted (Francis & Simon, 1987; Goodwin-Stewart & Kent, 2006; Gul, 2006). Many of these studies followed the original seminal work by Simunic (1980) and have identified a variety of factors to explain the variation in audit fees. The majority of these studies predict that audit fees are associated with factors relating to size, complexity, and risk (Simunic, 1980; Francis, 1984; Hackenbrack & Knechel, 1997). Other studies have also found that audit fees are associated with profitability (Francis & Simon, 1987; Goodwin-Stewart & Kent, 2006), total number of subsidiaries and foreign subsidiaries, and the length of the external auditor's relationship with the client (O'Keefe, Simunic & Stein, 1994; Stein *et al*., 1994; Felix *et al*., 2001). To capture differences in client risks, two others control variables are included, namely financial leverage and current ratio. The coefficient for financial leverage is expected to be positive, whereas the predicted direction for current ratio is negative.

4. RESULTS AND DISCUSSION

4.1 Descriptive statistics

Table 6 presents descriptive statistics for the variables used in this study. The mean for audit fees in the sample is RM633,520, ranging from a minimum of RM41,750 to a maximum of RM9,100,000. The audit fee model used in this study includes several control variables which were used in prior studies (e.g., Simunic, 1980). These variables include firm size (*LNASSET*), client risk (*CURRENT*, *LEVERAGE*, *ROA*, *OPINION*), audit complexity (*LNSUB*, *FOREIGN*, *RECEIVABLES* and *INVENTORY*) and auditor quality (*AUDITORTENURE*).[14] As shown in Table 6, the mean total assets for our sample is

Table 6: Descriptive statistics of sample firms

Variables	*Min*	*Max*	*Mean*	*Std. Dev*	*Median*
Dependent variable					
FEES (RM)('000')	41.75	9,100.00	633.52	1184.61	3092.40
LNFEES	10.64	16.02	12.64	1.11	12.64
Panel A: Client attributes					
ASSET (RM) ('000')	1,770.64.00	113,526,000.00	8,927,400.00	19,304,430.00	17,190,000.00
LNASSET	14.39	25.23	21.39	1.81	21.27
SUB	0.00	445.00	33.79	56.77	15.00
LNSUB	0.00	6.10	2.84	1.22	2.77
FOREIGN	0.00	159.00	6.50	19.24	1.00
RECEIVABLES	0.00	0.63	0.14	0.15	0.09
INVENTORY	0.00	0.53	0.08	0.11	0.02
ROA	–0.17	1.49	0.07	0.19	0.04
CURRENT	0.00	30.40	2.77	4.17	1.66
LEVERAGE	0.00	21.26	1.30	3.14	0.47
OPINION	0.00	1.00	0.04	0.20	0.00
AUDITORTENURE	1.00	10.00	4.15	1.94	4.00
Panel B: Experimental variables					
IATENURE	1.00	11.00	7.56	2.98	9.00
IATRAINING	24.00	168.00	80.65	26.89	96.00
ICT	0.00	30.00	5.96	6.80	5.00
PROPICT	0.00	100.00	56.55	24.56	57.14
IAEXPER	2.00	41.00	10.75	9.94	8.00
PROPIAEXPER	33.33	100.00	98.76	7.89	100.00
CERT	1.00	41.00	10.55	9.71	8.00
PROPCERT	33.33	100.00	96.01	12.00	100.00
IACONTRB (%)	0.0	70.00	5.75	12.57	0.00

RM8,927,400,000 and ranges from RM177,064 to RM113,526,000,000.[15] The sample firms have an average leverage of 1.3 and the mean ROA is 0.07. About 28 percent of the sample firms reported a loss in the previous year. In terms of auditor-client relationships, more than 60 percent of the sample firms have been with their incumbent auditor for more than 3 years. Panel B of Table 6 documents descriptive statistics for experimental variables. *IACONTRB* averages 5.75 percent with a range between 0 and 70 percent. This indicates that, from the perception of external auditors, the contribution of IA to financial statement audits is rather low. *IATENURE* ranges from 1 year to 11 years with an average of 7.56 years. This suggests that, on average, the internal audit function has been established in respondents' firms for at least 5 years. *IATRAINING* averages 81 hours, with a minimum of 24 hours to a maximum of 168 hours per year. With regard to IA staff competence, the mean percentage of IA staff with IT skills (*PROPICT*) is 56.55 percent, whereas the mean percentage of IA staff with auditing experience (*PROPIAEXP*) and the mean percentage of IA staff with professional qualifications in auditing and accounting (*PROPCERT*) are 98 and 96 percent, respectively. This suggests that most of the IA staff have prior experience in auditing and are professionally certified. In summary, based on the descriptive statistics, we can conclude that the respondents' firms have a sizeable and quite mature IA function with staff who are fully equipped with technical competency, experience and are professionally qualified.

Table 7 presents the correlation matrix for the variables that were included in the internal audit contribution model. The Pearson correlations presented in Table 7 generally suggest that audit fees are negatively correlated with four hypothesized variables – the tenure of IA function existence (*IATENURE*), training attended by IA staff (*IATRAINING*), proportion of IA staff with ICT and computing skills (*PROPICT*) and the assessment of the external auditors regarding the contribution of the IA to financial statement audits (*IACONTRB*). The correlations amongst the independent variables are comparatively low as all values are well below 0.5, except for the correlation between *LNFEES* and *LNASSETS* ($r = 0.643$), *LNFEES* and *LNSUB* ($r = 743$) and *PROPEXP* and *PROPCERT* ($r = 0.631$). Our results also indicate that for all estimations, all independent variables has VIF values of less than 10, with the highest value recorded by *PROPCERT* (VIF value of 2.386).

4.2 Multivariate analysis

A total of three estimations were carried out, as reported in Table 8. The first estimation was carried out to test the validity of the audit fee model without incorporating any of the test variables, followed by the second and third estimations in relation to the two hypotheses tested (Hypotheses 1 and 6). As shown in Table 8, the *F*-statistic for each of the OLS regression models is statistically significant at the 0.01 level and the adjusted R^2 is about 80 percent. The adjusted R^2 of each model is comparable with prior studies in the US, the UK and Australia, and slightly better than other audit fees studies in Malaysia. For instance, the reported adjusted R^2 is about 60 percent in Gul (2006) and 69 percent in Yatim *et al*. (2006). Consistent with prior studies, with the exception of *ROA*, *CURRENT*, *LEVERAGE*, *INVENTORY*, and *AUDITORTENURE*, the traditional variables used in the audit fees model, *LNASSET*, *LNSUB*, *FOREIGN*, *RECEIVABLES*, and *OPINION* are all positive and significant ($p < 0.10$, $p < 0.05$ and $p < 0.01$) across all estimations.

Hypotheses 1–5 predict a negative association between audit fees and five aspects of IA competency. The hypothesis variables are: the tenure of IA function existence in the organization (*IATENURE*); training provided to IA staff (*IATRAINING*); proportion of IA staff having IT and computing skills (*PROPICT*); proportion of IA staff having experience in accounting and auditing (*PROPIAEXPER*) and proportion of IA staff with professional certification (*PROPCERT*). As shown in Table 7, under Estimations 2 and 3, four hypothesis variables related to IA competency are negative and significantly associated with audit fees. For Hypotheses 1 and 2, we find a negative and strong significant coefficient for the tenure of IA function existence in the organization (*IATENURE*) (Estimation 2: –0.076, $t = –2.619$, $p < 0.05$, one-tailed; Estimation 3: –0.082, $t = 2.898$, $p < 0.001$, one-tailed) and training provided to IA staff (*IATRAINING*) (Estimation 2: –0.009, $t = –2.861$, $p < 0.001$, one-tailed; Estimation 3: –0.08, $t = –2.590$, $p < 0.05$, one-tailed) and audit fees. Next, Hypotheses 4 and 5 are in the right direction but only marginally significant. We find that the proportion of IA staff having experience in auditing (*PROPIAEXPER*) (Estimation 2: –0.017, $t = –1.471$, $p < 0.10$, one-tailed; Estimation 3: –0.15, $t = –1.319$,

Table 7: Correlation coefficient for the variables in the model

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
LNFEES (1)	1.000	0.643**	0.747**	0.546**	–0.063	–0.188	–0.049	–0.265*	–0.088	–0.094	–0.068	–0.075	0.214	0.067	–0.027	0.144	–0.018
LNASSET (2)		1.000	0.465**	0.246*	–0.333**	–0.349**	–0.016	–0.145	0.155	–0.137	0.186	0.040	0.358**	0.126	0.037	0.207	0.166
LNSUB (3)			1.000	0.532**	–0.160	–0.221	0.061	–0.214	–0.053	–0.321**	–0.163	0.091	0.378**	0.058	–0.089	0.053	0.090
FOREIGN (4)				1.000	0.008	0.082	–0.001	–0.080	–0.033	–0.070	–0.239*	0.070	0.217	0.117	0.013	0.052	0.0182
RECEIVABLES (5)					1.000	0.230*	–0.094	–0.178	–0.135	0.054	0.037	0.030	–0.026	0.089	0.059	0.050	–0.108
INVENTORY (6)						1.000	0.140	–0.151	–0.196	0.259*	0.183	0.227	–0.337**	0.049	–0.025	–0.083	0.203
ROA (7)							1.000	0.012	–0.037	–0.091	–0.143	–0.173	–0.093	–0.138	0.023	0.079	0.560**
CURRENT (8)								1.000	–0.072	–0.089	–0.233*	0.000	–0.182	–0.153	0.049	–0.044	–0.042
LEVERAGE (9)									1.000	–0.071	0.030	–0.274*	0.158	0.115	0.029	0.126	–0.052
OPINION(10)										1.000	0.234*	0.123	–0.253*	0.174	0.033	0.069	–0.095
AUDITORTENURE (11)											1.000	0.281*	0.051	0.136	–0.004	0.023	0.117
IATENURE(12)												1.000	0.004	0.280*	–0.012	0.091	–0.027
IATRAINING(13)													1.000	0.148	–0.161	0.054	–0.001
PROPICT(14)														1.000	0.003	0.309**	–0.179
PROPIAEXPER(15)															1.000	0.631**	0.073
PROPCERT(16)																1.000	0.024
IACONTRB (17)																	1.000

** Correlation is significant at $p < 0.01$ level (two-tailed), * Correlation is significant at $p < 0.05$ level (two-tailed)

LNFEES = natural logarithm of audit fees. *LNASSETS* = natural logarithm of total assets. *LNSUB* = natural logarithm of firm subsidiaries. *FOREIGN* = total number of foreign subsidiaries. *RECEIVABLES* = ratio of receivables to total assets. *INVENTORY* = ratio of inventory to total assets. *ROA* = earnings before interest and tax divided by total asset. *CURRENT* = ratio of current assets to current liabilities. *LEVERAGE* = ratio of total long term liabilities to total assets, *OPINION*= External auditors report on clients financial statement (0 = Unqualified, 1 = Qualified), *AUDITORTENURE* = Average tenure of external auditors with the client's firms, *IATENURE* = The tenure of IA Existence in the organization, in years, *IATRAINING* = Average training hours for internal auditors in a year, in hours, *PROPICT* = Proportion of internal auditors with computer & IT skills to total number of internal audit staff, *PROPIAEXPER* = Proportion of internal auditors with auditing experience to total number of internal audit staff, *PROPCERT* = Proportion of internal auditors with accounting and auditing professional certification to total number of internal audit staff, *IACONTRB* = external auditors assessment of percentage of IA contribution to financial statement audit (0–100%).

Table 8: Least squares regression results on internal audit variables and audit fee for Estimations 1, 2 and 3

Variable (s)	*Predicted direction*	*Estimation 1 Coefficient (t-statistic) p-value**	*Estimation 2 Coefficient (t-statistic) p-value**	*Estimation 3 Coefficient (t-statistic) p-value**
CONSTANT	?	5.372 (4.825) 0.000***	6.840 (5.230) 0.000***	6.491 (5.053) 0.000***
LNASSET	+	.280 (5.202) 0.000***	.282 (5.633) 0.000***	0.297 (6.024) 0.000***
LNSUB	+	.453 (5.354) 0.000***	0.508 (6.629) 0.000***	0.473 (5.851) 0.000***
FOREIGN	+	0.010 (2.068) 0.044**	0.011 (2.550) 0.014**	0.015 (3.177) 0.002***
RECEIVABLES	+	1.093 (1.968) 0.027**	1.051 (2.009) 0.049**	0.919 (1.790) 0.079*
INVENTORY	+	0.123 (0.134) 0.894	0.275 (0.301) 0.764	0.340 (0.382) 0.704
ROA	−	0.414 (0.426) 0.672	−0.585 (−0.576) 0.567	−0.732 (−0.739) 0.463
CURRENT	−	−0.019 (−0.949) 0.346	−0.017 (−0.950) 0.346	−0.017 (−0.959) 0.342
LEVERAGE	+	−0.006 (−0.255) .799	−0.020 (−0.845) 0.402	−0.028 (−1.186) 0.241
OPINION	+	0.778 (1.850) 0.034**	0.512 (1.288) 0.100*	0.410 (1.050) 0.298
AUDITORTENURE	−	−0.050 (−1.072) 0.144	−0.015 (−0.321) 0.749	−0.034 (−0.737) 0.464
IATENURE	−		−0.076 (−2.619) 0.011**	−0.082 (−2.898) 0.005***
IATRAINING	−		−0.009 (−2.861) 0.006***	−0.008 (−2.590) 0.012**
PROPICT	−		−0.002 (−0.753) 0.455	−0.003 (−1.069) 0.290
PROPIAEXPER	−		−0.017 (−1.471) 0.073*	−0.015 (−1.319) 0.096*
PROPCERT	−		−0.013 (−1.510) 0.068*	−0.012 (1.489) 0.071*
IACONTRB	−			−0.016 (−2.011) 0.049**
R^2		0.744	0.810	0.823
Adjusted R^2		0.701	0.758	0.770
F-ratio		17.440	15.592	15.680
Significance *F*		0.000	0.000	0.000
N		73	73	73

* *p*-values represent one tailed-test when direction of coefficient is consistent with expectation
LNFEES = natural logarithm of audit fees. *LNASSETS* = natural logarithm of total assets. *LNSUB* = natural logarithm of firm subsidiaries. *FOREIGN* = total number of foreign subsidiaries. *RECEIVABLES* = ratio of receivables to total assets; *INVENTORY* = ratio of inventory to total assets. *ROA* = earnings before interest and tax divided by total asset. *CURRENT* = ratio of current assets to current liabilities. *LEVERAGE* = ratio of total long-term liabilities to total assets, *OPINION* = External auditors report on clients financial statement (0 = Unqualified, 1 = Qualified), *AUDITORTENURE* = Average tenure of external auditors with the client's firms, *IATENURE* = The tenure of IA existence in the organization, in years, *IATRAINING* = Average training hours for internal auditors in a year, in hours, *PROPICT* = Proportion of internal auditors with computer & IT skills to total number of internal audit staff, *PROPIAEXPER* = Proportion of internal auditors with auditing experience to total number of internal audit staff, *PROPCERT* = Proportion of internal auditors with accounting and auditing professional certification to total number of internal audit staff, *IACONTRB* = external auditors assessment of percentage of IA contribution to financial statement audit (0–100%).

$p < 0.01$, one-tailed) and proportion of IA staff with accounting and auditing professional certifications (*PROPCERT*) (Estimation 2: –0.013, $t = -1.510$, $p < 0.10$, one-tailed; Estimation 3: –0.12, $t = -1.489$, $p < 0.10$, one-tailed) are only associated with lower audit fees at the 10 percent level for both estimations. Furthermore, the relationship between the proportion of IA staff with computing and IT skills (*PROPICT*) and audit fees is insignificant. Thus Hypothesis 3 was not supported, but is in the right direction. Overall, our results are consistent with the call made by the professional auditing standards that external auditors should only rely on IA (or invest less audit effort) when the IA department is more competent (high quality) leading to lower audit fees.

Moving on, Hypothesis 6 pertains to the other aspect of IA quality which predicts whether the contribution of IA to external audit reduces external audit fees. As shown in Table 8, the IA contribution variable (*IACONTRB*) is negative and significantly associated with audit fees (Estimation 3, –0.016; $t = -2.011$, $p < 0.05$; one-tailed). Consistent with Felix *et al*. (2001), the results suggest that, as the extent of internal audit contribution increases, there will be a significant reduction in external audit fees.

5. CONCLUSIONS

This study extends the present audit fees literature by examining both aspects of internal audit quality, namely internal audit competency and internal audit contribution to financial statement audit and audit fees. This study is unique in the sense that the data utilized were collected from three sources, i.e. internal auditors' responses, external auditors' responses and publicly available information (annual reports). Overall, the results of our study indicate that both aspects of IA quality have a negative association with audit fees, thus providing support for the substitute perspective. In particular, this result of the study indicates that four out of five aspects of competency (the age of the existence of the IA function; training; IA staff having prior experience in auditing and accounting and IA staff with professional certification) reduces the audit effort by external auditors which in turn results in the reduction in external audit fees. Further, the analysis also indicates a direct, negative relationship between IA contribution to external audit and audit fees and this finding is congruent with the 'substitution theory'.

From a practical perspective, our study highlights the need for the organization to emphasize higher quality audits. In particular, our findings suggest that an ideal IA function should reflect a department that hires competent IA staff, particularly, those with professional certifications and ample experience in auditing and accounting. Furthermore, our results reveal that firms with an older IA function tend to contribute more to higher quality internal audit and invest more in training their staff. Moreover, the findings also highlight that the coordination between internal and external audit, especially through the reliance of external auditors on the IA work, could result in cost savings for the organization.

Our study has several potential limitations. First, similar to Felix *et al*. (2001), the sensitivity of the data requested, and the importance of receiving matching responses from internal and external auditors have resulted in a small sample size. Most of the internal auditors' responses are limited to only large firms and external auditors' responses are only from Big 'N' public accounting firms. Thus, there may be potential for response bias and a small sample size of only 73 firms can also limit the generalizability of the results. Second, since variable measurement is largely based on the external auditors' recall of the extent of IA contribution to financial statement audit, there may be some bias in variable measurement as the survey was administered in 2006 and requested details of audits completed for the financial year end of December 31, 2005. Finally, it appears that approximately 27 percent of the sample firms fully outsourced their IA functions. As such, we do not have information on the extent to which external auditors may rely on IA in such circumstances and the impact of such reliance on external audit fees. Thus, it would be interesting for future studies to focus on the issue of whether the IA competency and extent of IA contribution to financial statement audit will differ between in-house and outsourced IA functions and further investigate whether this difference is reflected in the audit fees charged by the external auditors to their audit clients.

Finally, we focus on only a few aspects of IA attributes, mostly competency and IA contribution to financial statement audit, and neglecting other factors prescribed by the auditing standard such as work performance and objectivity. It is possible that there may be other aspects of the IA unit that could affect the results such as the frequency of and private meetings between internal auditors

and audit committee, the IA budgets and degree of independence. Possibly, future studies may develop a multidimensional model of IA quality involving not only external auditor assessment but also other dimensions such as IA objectivity and work performance. Nevertheless, our study provides additional evidence on how IA quality measured by its competencies and the contribution IA could make to the financial statement audit may have direct and indirect effects on audit fees. It is also clearly evident that there are economic benefits to be gained through lower audit fees which can be enhanced in organizations by having better planning and coordination between the internal and external auditors. Future studies identifying the different types of work completed by internal auditors that will become useful for external audit and how internal auditor skills can be usefully engaged by external auditors potentially add value to this area. Finally, more case-based studies on improving the relationship and coordination between internal and external audit could be undertaken to gain a deeper understanding of the processes involved in reducing audit costs while at the same time producing high quality financial reports.

NOTES

1. Similar to our study, Stein *et al*. (1994), Felix *et al*. (2001) and Ho and Hutchinson (2010) combine both archival and survey data. However, these studies only looked at one aspect of IA, either IA contribution or IA attributes. For instance, Felix *et al*. (2001) only investigated whether IA contribution to financial statement audit reduces audit fees, and Ho and Hutchinson (2010) examined whether IA attributes and processes affect audit fees.
2. Bursa Malaysia is a self-regulating organization governing the conduct of public companies and enforcing their listing and disclosure requirements.
3. The main professional body supporting internal auditors in Malaysia is the Institute of Internal Auditors Malaysia (IIA Malaysia). The IIA was formed in 1977, a non-profit professional organization dedicated to the advancement and development of the internal auditing profession in Malaysia.
4. A study of 380 publicly listed Malaysian companies by the Institute of Internal Auditors (IIA) in Malaysia reveals that only 58 percent of respondent companies had their own IA functions in the year 2002.
5. The terms 'internal audit contribution to external audit' and 'external auditor reliance on internal audit' are used synonymously.
6. Elliot and Korpi's (1978) sample consisted of only manufacturing companies and financial institutions from a single external audit firm.
7. Ho and Hutchinson (2010) utilized several proxies of IA including size, IA staff prior experience and certification. Their results also support a negative relationship between IA and audit fees.
8. Agency theory argued that directors and audit committee members who seek to protect their reputation are likely to demand multiple, high quality internal controls and related governance mechanisms.
9. It is also interesting to note that the IA function quality proxies by competence (experiences, certification and training) and objectivity (CAE report to audit committee and size of IA function) are not significant, indicating that the extent to which the external auditor is willing to rely on the IA function does not vary with the quality of the IA function.
10. The list of the head of internal auditors is obtained from the Institute of Internal Auditors (IIA) located in Malaysia.
11. The total number of companies listed on the Main Board of the Bursa Malaysia Stock Exchange for the year ended 2005 is 650 companies.
12. Unlike Felix *et al*. (2001), the Heads of the IA departments were asked to provide both the name of the partner in charge of their financial statement audit and the name of the public accounting firms to ensure that the matching questionnaire could be sent to the appropriate partner-in-charge of the client's audit.
13. A second test for non-response bias was also conducted whereby a *t*-test was run for all variables used to test for any differences between the first mailing and those received after the follow-up reminders were sent. No significant differences were found ($p < 0.05$) between early and late responses, suggesting that non-response bias is not a problem.
14. We did not include Big 'N' (auditor quality) as the control variable in the regression model as all of respondent firms are audited by Big 'N' auditors.

15. As at December 31, 2005, the exchange rate per US$ is RM$3.80.

REFERENCES

American Institute of Certified Public Accountant (AICPA) (1991), *The Auditor's Consideration of the Internal Audit Function in an Audit of Financial Statements*. Statement on Auditing Standards No. 65. New York: AICPA.

Anderson, T. & Zeghal, D. (1994), 'The pricing of audit services: Further evidence from the Canadian market', *Accounting and Business Research*, Vol. 24, No. 95, pp. 195–207.

Archambeault, D. S., DeZoort, F. T. & Holt, T. P. (2008), 'The need for an internal auditor report to external stakeholders to improve governance transparency', *Accounting Horizons*, Vol. 22, No. 4, pp. 375–88.

Arena, M. & Azzone, G. (2009), 'Identifying organizational drivers of internal audit effectiveness', *International Journal of Auditing*, Vol. 13, No. 1, pp. 43–60.

Arrow, K. (1962), 'The economic implications of learning by doing', *The Review of Economic Studies*, Vol. 29, No. 3, pp. 155–73.

Bahk, B. H. & Gort, M. (1993), 'Decomposing learning by doing in new plants', *Journal of Political Economy*, Vol. 101, No. 4, pp. 561–83.

Beasley, M. S., Carcello, J. V., Hermanson, D. R. & Lapides, P. D. (2000), 'Fraudulent financial reporting: Consideration of industry traits and corporate governance mechanisms', *Accounting Horizons*, Vol. 14, No. 4, pp. 441–54.

Brody, R. G., Golen, S. P. & Reckers, P. M. (1998), 'An empirical investigation of the interface between internal and external auditors', *Accounting and Business Research*, Vol. 28, No. 3, pp. 160–72.

Brown, P. R. (1983), 'Independent auditor judgment in the evaluation of internal audit functions', *Journal of Accounting Research*, Vol. 21, No. 2, pp. 444–55.

Bursa Malaysia (2009) Listing Requirements for Bursa Malaysia Securities. Available at: http://www.bursamalaysia.com/website/bm/regulation/rules/listing_requirements (accessed March 5, 2012).

Cahill, L. B. (1994), 'Benchmarking environmental audit programs: Best practice and biggest challenges', *Total Quality Management*, Vol. 3, No. 4, pp. 457–68.

Chan, P., Ezzamel, M. & Gwilliam, D. (1993), 'Determinants of audit fees for quoted UK companies', *Journal of Business, Finance & Accounting*, Vol. 20, No. 6, pp. 765–86.

Collier, P. A. & Gregory, A. (1996), 'Audit committee effectiveness and the audit fee', *European Accounting Review*, Vol. 5, No. 2, pp. 177–98.

Craswell, A. T., Francis, J. R. & Taylor, S. L. (1995), 'Auditor brand name reputations and industry specialization', *Journal of Accounting and Economics*, Vol. 20, No. 3, pp. 297–322.

DeZoort, F. T. (1998), 'An analysis of experience effects on audit committee members' oversight judgment', *Accounting, Organizations and Society*, Vol. 23, No. 1, pp. 1–21.

Dunne, T., Robert, M. and Samuelson, L. (1989), 'Firm entry and postentry performance in the US chemical industries', *Journal of Law and Economics*, Vol. 32, No. 2, pp. 233–71.

Elliot, R. K. & Korpi, A. R. (1978), 'Factors affecting audit fees', in Shakun, M. (ed.), *Cost-Benefit Analysis of Auditing: Commission on Auditors' Responsibility Research Study No. 3*, New York: AICPA.

Felix, W. L., Gramling, A. A. & Maletta, M. J. (1998), *Coordinating Total Audits Coverage: The Relationship between Internal Audit and External Auditors*. Institute of Internal Auditors Research Foundation, Altamonte Springs, FL: The Institute of Internal Auditors.

Felix, W. L., Gramling, A. A. & Maletta, M. J. (2001), 'The contribution of internal audit as a determinant of external audit fees and factors influencing this contribution', *Journal of Accounting Research*, Vol. 39, No. 3, pp. 513–34.

Francis, J. (1984), 'The effect of audit firm size and audit prices: A study of the Australian market', *Journal of Accounting and Economics*, Vol. 6, No. 2, pp. 133–51.

Francis, J. & Simon, D. T. (1987), 'A test of audit pricing in the small client segment of the US audit market', *The Accounting Review*, Vol. 62, No. 1, pp. 145–57.

Goodwin-Stewart, J. & Kent, P. (2006), 'The relationship between external audit fees, audit committee characteristic and internal audit', *Accounting and Finance*, Vol. 46, No. 3, pp. 387–404.

Gul, F. A. (2006), 'Auditors' response to political connections and cronyism in Malaysia', *Journal of Accounting Research*, Vol. 44, No. 5, pp. 931–63.

Hackenbrack, K. & Knechel, W. R. (1997), 'Resource allocation decisions in audit engagements', *Contemporary Accounting Research*, Vol. 14, No. 3, pp. 481–99.

Hass, S., Abdolmohammadi, M. J. & Burnaby, P. (2006), 'The Americas' literature review on internal auditing', *Managerial Auditing Journal*, Vol. 21, No. 8, pp. 835–44.

Hay, D., Knechel, W. R. & Ling, H. (2008), 'Evidence on the impact of internal control and corporate governance on audit fees', *International Journal of Auditing*, Vol. 12, No. 1, pp. 9–24.

Ho, S. & Hutchinson, M. (2010), 'Internal audit department characteristics/activities and audit fees: Some evidence from Hong Kong firms', *Journal of International Accounting, Auditing and Taxation*, Vol. 19, No. 2, pp. 121–36.

Hopenhayn, H. A. (1992), 'Entry, exit and firm dynamics in long run equilibrium', *Econometrica*, Vol. 60, No. 5, pp. 1127–50.

Institute of Internal Auditors (IIA) (2009), *Guidance Task Force*. Altamonte Springs, FL: The Institute of Internal Auditors.

Institute of Internal Auditors (IIA) (2011), International Professional Practices Framework (IPPF). Available at: http://www.theiia.org/guidance/standards-and-guidance/ippf/definition-of-internal-auditing/ (accessed March 5, 2012).
Institute of Internal Auditors (IIA) Malaysia (2002), *Guidelines on Internal Audit Function*. Kuala Lumpur.
Knechel, W. R. & Willekens, M. (2006), 'The role of risk management and governance in determining audit demand', *Journal of Business Finance & Accounting*, Vol. 33, No. 9–10, pp. 1344–67.
Larkin, J. M. (2000), 'The ability of internal auditors to identify ethical dilemmas', *Journal of Business Ethics*, Vol. 23, No. 4, pp. 401–9.
Le Grand, C. H. (2005), *Information Technology Controls*, Altamonte Springs, FL: The Institute of Internal Auditors Research Foundation.
Majumdar, S. K. (1997), 'The impact of size and age on firm level performance: Some evidence from India', *Review of Industrial Organisation*, Vol. 12, No. 2, pp. 231–41.
Malaysian Institute of Accountants (MIA) (2000), *Malaysian Approved Standards on Auditing*. Kuala Lumpur: Malaysian Institute of Accountants and Malaysian Institute of Certified Public Accountants (MICPA).
Maletta, M. J. (1993), 'An examination of auditors' decisions to use internal auditors as assistants: The effect of inherent risk', *Contemporary Accounting Research*, Vol. 9, No. 2, pp. 508–25.
Mat Zain, M., Subramaniam, N. & Stewart, J. (2006), 'Internal auditors' assessment of their contribution to financial statement audits: The relation with audit committee and internal audit function characteristics', *International Journal of Auditing*, Vol. 15, No. 1, 1–18.
Messier, W. F. & Schneider, A. (1988), 'A hierarchical approach to the external auditor's evaluation of the internal auditing function', *Contemporary Accounting Research*, Vol. 4, No. 2, pp. 337–53.
O'Keefe, T. B., Simunic, D. A. & Stein, M. T. (1994), 'The production of audit services: Evidence from a major accounting firm', *Journal of Accounting Research*, Vol. 32, No. 2, pp. 241–61.
Prawitt, D. F., Smith, J. L. & Wood, D. A. (2009), 'Internal audit quality and earnings management', *The Accounting Review*, Vol. 84, No. 4, pp. 1255–80.
Prawitt, D. F., Sharp, N. Y. & Wood, D. A. (2010), 'Reconciling archival and experimental research: Does internal audit contribution affect the external audit fee?' Working Paper, Brigham Young University.
Public Company Accounting Oversight Board (PCAOB) (2007), *An Audit Internal Control Over Financial Reporting that is Integrated With An Audit of Financial Statements. Auditing Standard No. 5*. Washington, DC: PCAOB.
Simunic, D. A. (1980), 'The pricing of audit services: Theory and evidence', *Journal of Accounting Research*, Vol. 18, No. 1, pp. 161–90.
Simunic, D. A. (1984), 'Auditing, consulting, and auditor independence', *Journal of Accounting Research*, Vol. 22, No. 2, pp. 679–703.
Stein, M. E., Simunic, D. A. & O'Keefe, T. B. (1994), 'Industry differences on the production of audit services', *Auditing: A Journal of Practice & Theory*, Supplement, pp. 128–42.
Suwaidan, M. S. & Qasim, A. (2010), 'External auditors, reliance on internal auditors and its impact on audit fees', *Managerial Auditing Journal*, Vol. 25, No. 6, pp. 509–25.
Wallace, W. A. (1984), *A Time Series Analysis of the Effect of Internal Audit Activities on External Audit Fees*. Altamonte Spring, FL: The Institute of Internal Auditors.
Yatim, P., Kent, P. & Clarkson, P. (2006), 'Governance structures, ethnicity, and audit fees of Malaysian listed firms', *Managerial Auditing Journal*, Vol. 21, No. 7, pp. 757–82.

AUTHOR PROFILES

Zulkifflee Mohamed is currently a Senior Lecturer at the Bank Rakyat School of Business & Entrepreneurship, Universiti Tun Abdul Razak, Malaysia. His areas of research are in corporate governance, auditing and accounting information system.

Mazlina Mat Zain is an Associate Professor attached to the Faculty of Management at Multimedia University, Malaysia. Her area of research includes internal auditing, audit pricing and auditor independence.

Nava Subramaniam is a Professor of Accounting at Deakin University Australia. Her main research interests are in auditing, corporate governance, management accounting / control systems and accounting education.

Wan Fadzilah Wan Yusoff is an Associate Professor at the Faculty of Management, Multimedia University, Malaysia. Her areas of research interests are in intellectual capital, knowledge management, performance management and strategy.

