

The Effect of Internal Audit Function Quality and Internal Audit Contribution to External Audit on Audit Fees

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Corporate governance mandates and listing rules identify internal audit functions (IAF) as a central internal control mechanism. External auditors are expected to assess the quality of IAF before placing reliance on its work. We provide evidence on the effect of IAF quality and IAF contribution to external audit on audit fees. Using data from a matched survey of both external and internal auditors, we extend prior research which is based mainly on internal auditors' assessment and conducted predominantly in highly developed markets. We find a positive relationship between IAF quality and audit fees as well as a reduction in audit fees as a result of external auditors' reliance on IAF. The interaction between IAF quality and IAF contribution to external audit suggests that higher quality IAF induces greater external auditor reliance on internal auditors' work and thus result in lower external audit fees.

Key words: Internal auditing, corporate governance, audit fees

INTRODUCTION

Traditionally, internal audit functions (IAF) have been established to examine and evaluate internal processes, procedures and controls. In contrast, external audit is more focused on providing assurance on financial statements. While the roles of external and internal audit are distinct, there are many opportunities for coordination and cooperation between the two functions which may yield synergistic outcomes such as higher quality audits and economic benefits (Gramling *et al.*, 2004; Sarens, 2009). In particular, with the escalating complexity in audit scope and processes, audit firms are continuously being challenged to be more cost-efficient while improving audit quality. Similarly, clients are under pressure to reduce the costs of external audit while at the same time being expected to improve the quality of financial reporting.

Professional auditing standards encourage external auditors to rely on internal audit work; however, they also require external auditors to first consider the quality of the IAF prior to relying on it.¹ In particular, external auditors may rely on the IAF if it is deemed to have sufficient objectivity and competency (Abbott, Parker & Peters, 2012a).² Prior evidence suggests that higher quality IAF promotes greater efficiencies, so as such, it is likely that cost efficiencies relating to external auditors' reliance on IAF will be affected by their evaluation of the quality of IAF and that the extent of reliance by external auditors on IAF work is contingent upon the quality of the IAF (Prawitt, Smith & Wood, 2009; Pizzini, Lin & Ziegenfuss, 2015).

This paper contributes to the understanding of the effect of governance mechanisms, in particular, the role and practice of internal auditing, in a number of ways. First, we examine whether firms with higher internal audit function quality (IAFQ) contribute to cost

efficiencies through a reduction in external audit fees. This is timely given the escalating pressures and scrutiny faced by organizations for better internal governance (see Sarens, 2009, 2014). Such pressures are acute in the current era, where there is a proliferation of corporate governance mandates and listing rules identifying IAF as a central internal control mechanism. Second, we test both the direct effects of IAF contribution to external audit on audit fees as well as the effect of its interaction with the quality of internal audit function (IAFQ) on audit fees. In doing so, we extend the work of Felix, Gramling and Maletta (2001) and Mohamed *et al.* (2012) by testing the moderating impact of IAFQ on the relationship between IAF contribution to external audit and audit fees. Third, we contribute to the corporate governance literature by examining the relationships among IAFQ, external auditors' reliance on IAF, and audit fees within a developing capital market setting, i.e. publicly listed firms in Malaysia. We add to the understanding of the relationship between external and internal auditing in broader international context and complement studies conducted in the relatively more mature and regulated contexts of Europe (e.g., Arena & Azzone, 2009; Arena & Jeppesen, 2010; Zaman & Sarens, 2013) and the US (e.g., Messier *et al.*, 2011; Prawitt, Sharp & Wood, 2011; Abbott, Parker & Peters, 2012a, 2012b). Our evidence also complements the comparison of IAF in developed and emerging markets (Sarens & Abdolmohammadi, 2011).

In examining the effect of IAF on audit fees, we consider both the substitution and complementary perspectives on governance and control. A premise of our research is that higher quality IAF will induce greater reliance by external auditors on such a function, particularly through a reduction in substantive testing work undertaken by external auditors and result in lower audit fees (Felix *et al.*, 2001; Prawitt *et al.*, 2011). Due to the competitive market, a portion of reduced external audit costs attributable to IAF contribution to external auditors' work is likely to be passed on to the audit client in the form of reduced external audit fees. Simunic (1984) contends that audit clients may substitute internal controls for external auditing if there is monopoly

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pricing, or substitute external auditing for internal control when knowledge spillovers reduce the cost of external auditing. In this 'substitution' perspective, two or more governance mechanisms may substitute for each other. Empirical evidence, however, indicates a positive association between the existence of IAF and audit fees, leading to the view that firms committed to strong corporate governance are not only likely to invest in greater levels of IAF but are also likely to be willing to pay more for the external audit (Goodwin-Stewart & Kent, 2006; Hay, Knechel & Ling, 2008). This alternative 'complementary controls' perspective suggests that, instead of substituting one type of control for another (e.g., internal audit for external audit), audit clients may concurrently increase their investment in all types of controls. In particular, boards of directors and audit committee members who seek to protect their reputational capital are likely to push for multiple, high-quality internal controls and related governance mechanisms. This implies more auditor effort, including more testing and coverage in critical areas, which in turn is likely to lead to an increase in audit fees (Hay *et al.*, 2008; Zaman, Hudaib & Haniffa, 2011).

There is a paucity of research testing the effect of the interaction between IAFQ and IAF contribution to external audit on audit fees. An exception, from the relatively more regulated and developed market of the US, is Felix *et al.* (2001). However, they did not examine the direct impact of IAFQ on audit fees, but had instead run two separate regression models, one indicating that IAFQ was a significant determinant of IAF contribution to external audit, and the second model showing that IAF contribution to external audit had a negative impact on audit fees. Given the complexity of the relationships affecting the quality of IAF, the contribution of IAF to external audit and audit fees and competing theories for explaining such relationships, further evidence on the direct and indirect relationships among these three variables is clearly warranted.

Unlike prior studies based solely on internal auditors' assessment, our paper is based on the external auditors' assessment of the quality of their clients' IAF. It is likely that external auditors' assessment of their clients' IAF provides a more objective assessment of the clients' IAF as the external auditors have undertaken the audit of their clients' financial statements. Complementing the external auditors' assessment, we also analyze the effect of IAF quality measured using an index based on IAF attributes prescribed in ISA610. We thus add to the prior literature that has used the existence of IAF as a proxy (see Wallace, 1984; Anderson & Zeghal, 1994; Knechel & Willekens, 2006; Hay *et al.*, 2008) as well as studies that have focused on the effects of direct assistance provided by internal auditors (Prawitt *et al.*, 2011; Abbott *et al.*, 2012a) and the use of IAF as a training ground (Messier *et al.*, 2011) on external audit.

Our review of the literature indicates that much of the empirical evidence to date in this area largely pertains to data from developed countries with more sophisticated capital markets (see Felix *et al.*, 2001; Prawitt *et al.*, 2011; Abbott *et al.*, 2012a, 2012b). Given the growing pressures for comparable corporate governance arrangements across different national jurisdictions due to globalization and international trade, further empirical evidence from developing countries may aid comparison and contribute to the development of better governance practices. In addition, professional standards could be

interpreted differently by auditors in different countries, leading to cross-national inconsistencies (O'Donnell & Prather-Kinsey, 2010). Our research is consistent with the call for further research in different institutional contexts (Turley & Zaman, 2007; Sarens & Abdolmohammadi, 2011; Sarens, 2014) and adds to the existing literature by providing evidence from a developing nation in the South-East Asian region, namely Malaysia, which is characterized by strong economic growth, a growing capital market and investment in a number of key corporate governance reforms. In the Malaysian context, our paper adds to Mat Zain, Subramaniam and Stewart's (2006) examination of the key determinants of IAF contribution to external audit and to the more recent study by Mohamed *et al.* (2012) that used the same data set but was limited to examining the effects of IAF contribution to external audit and IAF competency on audit fees. We complement these prior studies by focusing on three dimensions: the external auditors' assessment of the quality of the client's IAF (IAFQ), the external auditors' assessment of the contribution of IAF to their work (IACONTRB), and measuring IAF quality using a composite index based on nine IAF attributes stipulated in ISA610 (IAQINDEX).

The importance of internal audit as a key governance function is acknowledged in various professional standards and corporate governance guidelines issued in Malaysia. For example, the listing rules of Bursa Malaysia require external auditors to liaise with internal auditors.³ In 2007, the revised version of the Malaysian Code on Corporate Governance (MCCG) stipulated that boards of directors establish an IAF (either in-house or outsourced) and identify a head of IAF who reports directly to the audit committee (HLFC, 2007). Subsequently, Bursa listing rules have adopted this recommendation and made this mandatory for listed companies. Nevertheless, when compared with the US and European settings in which most of the research on the effect of IAF on audit fees has been conducted, the internal audit profession in Malaysia is arguably still maturing. Our setting also contrasts particularly with the US in which companies are required to report on internal control weaknesses (see Hogan & Wilkins, 2008; Elder *et al.*, 2009; Munsif *et al.*, 2011). In Malaysia there is no equivalent requirement to report on internal control weaknesses. In this regard, our study provides evidence on the importance of IAFQ for audit fees in a relatively less regulated setting and complements the comparison of IAF in emerging and developed markets (Sarens & Abdolmohammadi, 2011).

Our study is based on 74 publicly listed firms in Malaysia and uses publicly available data matched with survey responses from internal and external auditors. The results of our study reveal that firms with high IAFQ are associated with higher external audit fees, providing support for the complementary perspective. We find a significant and negative relationship between external auditors' reliance on IAF and audit fees, which suggests that firms pay lower audit fees when external auditors rely on internal audit work. As predicted, we also find a negative and significant interaction between IAFQ and external auditors' reliance on internal audit (IACONTRB) and audit fees. More specifically, the results indicate that the negative association between the extent of external auditors' reliance on IAF work (IACONTRB) and audit fees becomes stronger as IAFQ increases. This suggests that external audit fees are reduced when external auditors rely on IAF work and that external auditors'

reliance is contingent on the quality of IAFQ. Interestingly, the findings also imply that, external auditors place significant emphasis on the call in auditing standards for them to rely to a greater extent on the work of internal auditors when their assessment of the quality of the clients' IAF is high.

While our findings are similar to those reported by Felix *et al.* (2001) and Mohamed *et al.* (2012), who found a significant negative association between external auditors' reliance on IAF and audit fees, our study provides additional evidence on the moderating effect of IAFQ on such a relationship. The results provide further evidence to regulators regarding promoting a synergistic relationship between internal and external auditors while emphasizing the need to maintain high-quality IAF. Overall, our study adds to the literature and provides evidence from both external and internal auditors in the context of a developing capital market. As argued by Pizzini *et al.* (2015), prior studies that used internal auditors' responses (and/or data from the IIA-GAIN database) are subject to self-reporting bias. Our use of responses from both internal and external auditors contributes towards overcoming some of the limitations of prior studies.

The remainder of this paper is organized as follows. The next section reviews literature pertinent to our research focus and develops our hypotheses. The third section describes our research method and model specification. The findings are presented in the fourth section, and conclusions, limitations and suggestions for future research appear in the final section.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Internal audit and audit fees

The relationship between internal control and audit fees is an emerging stream of research. Two competing perspectives (i.e. substitution versus complementary) seek to explain the expected relationship between them. The substitution perspective suggests that increases in internal controls will reduce audit fees because one type of governance mechanism will substitute for another. For instance, from a substitution perspective, better quality internal controls are expected to reduce external audit monitoring efforts and thus reduce audit fees. In contrast, from a complementary perspective, the presence of IAF signals greater commitment by the firm to stronger corporate governance and willingness to pay more for higher quality external audit (Hay *et al.*, 2008).

Internal audit quality

As the quality of internal control is not easily observable, a number of studies have used IAF as a proxy for internal control. Prior studies have examined whether the presence of an IAF is associated with audit fees. Walker and Casterella (2000) and Goodwin-Stewart and Kent (2006), for instance, found a positive relationship between presence of IAF and external audit fees. Hay *et al.* (2008) also found a positive relationship between internal control and audit fees. However, Johnson, Walker and Westergaard (1995) did not find a significant relationship between the existence of IAF and external audit fees. Other studies, by Anderson and Zeghal (1994) and Wallace (1984), also examined the relationship

between IAF costs (proxying for the scope and breadth of work undertaken by IAF) and external audit fees and found mixed results. Based on a study of 32 large US firms, Wallace (1984) found a negative association between IAF expenditure and audit fees. On the other hand, Anderson and Zeghal (1994) found a positive relationship between the ratio of IAF costs to total assets and audit fees. However, this result was evident only for large companies, and no such relationship was observed for small companies.

Following the introduction of the Sarbanes Oxley Act (SOX) in the US and the associated Section 404 stipulations regarding reporting on internal control weaknesses (ICW), a number of studies have examined the relationship between internal control weaknesses and audit fees. Munsif *et al.* (2011) examine audit fees for Securities and Exchange Commission (SEC) registrants that remediate previously disclosed material internal control weaknesses and find that remediating firms have lower audit fees compared to firms that continued to report material weaknesses in internal control. Similarly, Hogan and Wilkins (2008) find that audit fees in the year preceding the disclosure of internal control weaknesses are significantly higher for firms with internal control deficiencies and suggest that auditors vary their response to increased control risk. Examining internal control weaknesses in the first year of SOX Section 404 implementation in the US, Elder *et al.* (2009) find that auditors use an array of strategies to respond to and manage client control risks and that as the clients' control risk increases, auditors are likely to increase audit fees.

Professional standards guiding external auditors on the use of IAF work identify factors such as objectivity, technical competence, due professional care and communication as important factors.⁴ IAFs are increasingly expected to cover a wide variety of roles and responsibilities, including providing assurance and supporting risk management processes. A higher quality IAF is more likely to be actively involved in its interactions with other governance mechanisms such as board of directors, audit committees and management (see Mat Zain & Subramaniam, 2007; Sarens, Christopher & Zaman, 2013; Zaman & Sarens, 2013). Such interactions in turn can be expected to lead to more reviews and reports compared to a less engaged and lower quality IAF. Consequently, external auditors may need to spend more time and effort reviewing such reports for the external audit and this in turn may increase external audit fees. Based on the above discussion, our first hypothesis is that:

H1: Firms with higher quality internal audit functions are more likely to pay higher external audit fees.

Internal audit contribution to external audit and external audit fees

According to the substitution perspective discussed earlier, external auditors may be able to substitute or use work completed by IAF. This in turn may reduce their work and thus lower audit fees. Our literature review suggests that only a few studies have developed constructs that directly assess IAF contribution to external audit and subsequently used such constructs to examine the effect on audit fees (see Elliot & Korpi, 1978; Stein, Simunic & O'Keefe, 1994; Felix *et al.*, 2001; Prawitt *et al.*, 2011; Mohamed *et al.*, 2012).

The early study by Elliot and Korpi (1978) measured IAF contribution to external audit using a continuous scale and found that the percentage reduction of audit scope as a result of IAF contribution was significant in predicting audit fees. Stein *et al.* (1994) measured IAF contribution using a dichotomous scale based on the level of assistance, i.e. 'extensive/moderate' or 'limited/none', provided to external auditors. The results indicate that the level of assistance provided was not significantly related to external audit fees. It is possible that the lack of significance may relate to limitations in the measurement scale. Felix *et al.* (2001) noted that such measures do not fully capture both forms of internal audit contribution, i.e. level of assistance provided by internal audit as well as the extent of reliance external auditors may have placed on work undertaken independently by IAF throughout the year. Thus, with the aim of capturing both of these dimensions, Felix *et al.* (2001) measured IAF contribution to external audit based on the external auditors' assessment using a continuous scale ranging from 0 percent to 100 percent. The overall aim of the study by Felix *et al.* (2001) was to examine IAF contribution to external audit as well as the factors influencing this contribution. The study was based on 70 matched responses received from a questionnaire survey of the external and internal auditors of Fortune 1000 firms. Two separate models were used by Felix *et al.* (2001). The first model found a significant and negative association between IAF contribution to external audit and audit fees, thus supporting Elliot and Korpi's (1978) findings. The second model revealed that IAF 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 availability of IAF and the level of coordination between IAF and external audit. Interestingly, IAF 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.* (2011) examined whether the reduction in external audit fees are due mainly to external auditors' reliance on IAF work or due to direct assistance provided by IAF during external audit. Based on data from 2001–2006 IIA-GAIN surveys of internal auditors, their findings suggest that external audit fees are only reduced when external auditors receive direct assistance from IAF and not when external auditors rely on the tasks performed by IAF.

Whereas the previously discussed studies provide evidence from more regulated and mature context, Mohamed *et al.* (2012) focused on the effect of IAF contribution to external audit and IAF competency in the developing market context of Malaysia. They find that external auditors' reliance on IAF work is associated with a reduction in fees. However, they did not focus on the quality of the IAF and how the interaction between IAF quality and IAF contribution to external audit affects audit fees.

For the current study, we hypothesize a negative relationship between IAF contribution to external audit and audit fees, and that such a relationship will grow stronger as the quality of IAF increases. A plausible explanation for this prediction is that external auditors are more willing to rely on IAF or use internal auditors as assistants when their assessment of the quality of the clients' IAF is high. This is because the decision to rely on IAF work is influenced by external auditors' evaluation of controls and risk assessment. Thus it is likely that higher

quality IAF will represent less risk for external auditors when they rely on IAF contribution to their work (Bame-Aldred *et al.*, 2013). This is consistent with the substitution perspective discussed earlier, suggesting that the quality of IAF is seen to have a negative impact on audit fees, as external auditors' reliance on the IAF increases with the function's quality and opportunities for cost savings grow. Based on the above discussion, our second and third hypotheses for this study are as follows:

H2: Firms with higher IAF contribution to external audit are more likely to pay lower external audit fees.

H3: External auditors are more likely to place greater reliance on firms with higher quality IAF, leading to lower external audit fees.

RESEARCH DESIGN AND MODEL SPECIFICATION

Sample and data

Data for this study was obtained from a questionnaire survey as well as publicly available information. The survey data consists of matching responses to questions that were designed for the chief audit executive (CAE) of IAF and external audit partners responsible for conducting the financial statement audit at these firms. A total of 650 questionnaire packages containing a covering letter, the survey and reply paid pre-addressed envelopes were mailed to the CAEs of firms publicly listed on Bursa Malaysia Main Board as at year-end 2005. Two sets of questionnaires were mailed to the CAEs with a request for them to complete one set and to forward the other to the external audit partner in charge of the audit of their firm. A total of 74 completed questionnaires from both internal and external auditor respondents were received yielding a response rate of 11.40 percent. Further details pertaining to the sample are provided in Panel A of Table 1.

Details on the respondent external audit firms are provided in Panel B of Table 1. The majority of respondents are from PricewaterhouseCoopers with the remaining respondents from the other three Big Four firms. The comparative descriptive data of the total population of firms listed on Bursa Malaysia Main Board and the final sample on which the data analysis is based are provided in Panel C of Table 1. The majority of the sample respondents are from the trading and services, and industrial products industries. Panel D of Table 1 compares the survey recipient and survey respondent characteristics in terms of size (total assets), complexity (total and foreign company subsidiaries) and risk (current ratio, return on assets ratio, return on equity ratio and leverage ratio). The analysis in Panel D of Table 1 indicates that non-response bias is not an issue in our study. Additionally, a *t*-test was performed for all variables to test for any differences between the first mailing and those received after follow-up reminders were sent. We found no significant differences ($p < 0.05$) between early and late respondents, also suggesting that non-response bias is not a problem.

The audit fees model

We use a cross-sectional regression model based on a review of prior audit fees research to examine the effect of IAF quality (IAFQ) and IAF contribution to external audit

Table 1: Sample distribution and characteristics

Panel A: Sample and response rate		<i>Sample</i>	<i>%</i>		
Questionnaires distributed		650	100		
Questionnaires received from IA respondents		106	16.46		
<i>Less:</i>					
Companies fully outsourced their IA function to external provider		(30)	(5)		
Non-useable responses		(2)	(0.03)		
Questionnaires received from External Auditors (EA)		74	11.43		
Panel B: Auditor distribution		<i>N</i>	<i>%</i>		
PricewaterhouseCoopers (PWC)		47	63.51		
Ernst & Young		12	16.23		
KPMG Peat Marwick		9	12.14		
Deloitte & Touché		6	8.12		
Total		74	100		
Panel C: Industry distribution					
<i>Industry classification</i>	<i>Total companies</i>	<i>Sample frequency</i>	<i>Distribution population (%)</i>	<i>Sample distribution (%)</i>	
Trading & Services	169	28	26.00	37.84	
Industrial product	162	13	24.92	17.57	
Properties	93	9	14.30	12.16	
Consumer product	84	5	12.93	6.76	
Construction	40	4	6.15	5.41	
Plantation	37	3	5.70	4.05	
Technology	31	2	4.78	2.70	
Infrastructure project	18	4	2.76	5.40	
Finance	16	6	2.46	8.11	
Total	650	74	100	100	
Panel D: Comparison of survey recipients and respondents					
<i>Variables (1)</i>	<i>Survey recipients (2)</i>	<i>Survey respondents (3)</i>	<i>t-test (4)</i>	<i>p-value (5)</i>	<i>Sig (6)</i>
Total assets (RM000s)	5,981.27 (17,526.462)	10,340.87 (22,702.448)	-1.391	0.161	ns
Subsidiaries	21.59 (62.836)	33.54 (56.42)	-1.491	0.124	ns
Foreign subsidiaries	5.92 (44.50591)	6.45 (19.12)	-0.1080	0.890	ns
Current ratio	8.6762 (86.20366)	2.74 (4.15)	0.573	0.552	ns
Return on assets	0.022 (5.45207)	0.070 (0.18)	-0.152	0.876	ns
Return on equity	0.020 (0.86849)	0.0530 (0.36920)	-0.319	0.750	ns
Leverage ratio	0.704 (3.100)	1.23 (3.12)	-1.329	0.152	ns

Notes: Columns 2 and 3 in Panel D report the mean and standard deviations in parentheses. ns = not significant. N = 650 for survey recipients, N = 74 for survey respondents. *t*-statistics (adjusted for unequal variances, as appropriate) for test of equality means between 74 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).

(IACONTRB) on external audit fees. We use the following model to test our hypotheses. The description and measurement of the variables are given in Table 2.

$$\begin{aligned} \text{LNFEES} = & \beta_0 + \beta_1 \text{IAFQ} + \beta_2 \text{IACONTRB} \\ & + \beta_3 \text{IAFQ} * \text{IACONTRB} + \beta_4 \text{TENURE} \\ & + \beta_5 \text{RELCON} + \beta_6 \text{LNASSETS} + \beta_7 \text{LNSUB} \\ & + \beta_8 \text{FOREIGN} + \beta_9 \text{RECEIVABLES} \\ & + \beta_{10} \text{INVENTORIES} + \beta_{11} \text{ROA} \\ & + \beta_{12} \text{CURRENT} + \beta_{13} \text{LEVERAGE} + \varepsilon \end{aligned}$$

Dependent variable

The dependent variable is the external audit fees paid by the firm to its auditor and is measured in Malaysian Ringgit.⁵ Consistent with prior audit fees studies

(Simunic, 1980; Felix *et al.*, 2001; Gul, 2006), we use the natural logarithm of external audit fees.

Experimental variables

The experimental variables for this study are: (i) the external auditors' assessment of the contribution of IAF to external audit (IACONTRB); (ii) the external auditors' assessment of the quality of the audit clients' IAF (IAFQ); and the effect of the interaction between IAFQ and IACONTRB. The wordings and scaling of both these measures were adopted from Felix *et al.* (2001) and obtained from the survey of external auditors. IACONTRB includes the contribution made by internal auditors acting as assistants under direct supervision of the external auditors or by contributing relevant work to

Table 2: Description of variables

<i>Variables</i>	<i>Description and measurement</i>	<i>Source</i>
Dependent		
LNFEES	Audit fee paid by the client (natural log of audit fees)	Annual Report
Client attributes		
LNASSETS	Total assets for client at the end of the fiscal year (natural log)	Annual Report
LNSUB	Total number of subsidiaries (natural log)	Annual Report
FOREIGN	Total number of foreign subsidiaries	Annual Report
RECEIVABLES	Ratio of receivables to total assets	Annual Report
INVENTORY	Ratio of inventory to total assets	Annual Report
ROA	Earnings before interest and tax divided by total assets	Annual Report
CURRENT	Ratio of total current assets to total current liabilities	Annual Report
LEVERAGE	Ratio of total liabilities to total assets	Annual Report
RELCON	External auditors' reliance on company internal control system (0 = Moderate, 1 = Extensive)	EA Survey
TENURE	Length of the auditor relationship with the client, in years	EA Survey
TRADING	If firm operates in trading and services sector = 1, otherwise 0	Annual Report
INDUSTRIAL	If firm operates in industrial products sector =1, otherwise 0	Annual Report
FINANCE	If firm operates in financial sector =1, otherwise 0	Annual Report
Experimental		
IAFQ	External auditors' assessment of the quality of the IAF (0–100%)	EA Survey
IACONTRB	External auditors' assessment of the percentage of IAF contribution to financial statement audit (0% = IAF did not perform any of the work required to complete the audit to 100% = IAF performed all of the work required to complete the audit)	EA Survey
IAQINDEX	IAF quality index, a composite score measuring the IAF quality (attributes as prescribed by ISA610) and ranging between 0 and 9, with 0 indicating lowest quality and 9 indicating highest quality. The scores are formed by aggregating the composite scores obtained from following nine broad constructs: number of years of experience as CAE (years); tenure (age) of IAF existence in the organization (in years); number of staff in the IAF; number of staff in the IAF having professional qualifications; number of staff in the IAF with industry experience; number of staff in the IAF with auditing experience; number of staff in the IAF with ICT knowledge and experience; average training hours attended by IAF staff annually; frequency of meetings between internal auditors and audit committee annually. A value of 1 is given for each of the nine IAF attributes above if the value is more than median with '0' indicating lowest quality and '9' highest quality.	IA Survey

external audit throughout the year, whereas IAFQ relates to external auditors' assessment of the quality of the clients' IAF.

Control variables

Audit fees models used in prior research have used a variety of variables to control for cross-sectional differences associated with company size, riskiness and complexity. Consistent with prior audit fees studies, we control for total assets (Simunic, 1980; Felix *et al.*, 2001; Gul, 2006; Schelleman & Knechel, 2010); total number of subsidiaries and number of foreign subsidiaries (Hackenbrack & Knechel, 1997; Johl, Subramaniam & Mat Zain, 2012); receivables and inventory (Carcello *et al.*, 2002; Goodwin-Stewart & Kent, 2006; Johl *et al.*, 2012); tenure, i.e. the length of the external auditors' relationship with the client (Stein *et al.*, 1994; Felix *et al.*, 2001; Schelleman & Knechel, 2010); and return on assets (Francis & Simon, 1987; Stein *et al.*, 1994; Goodwin-Stewart & Kent, 2006; Gul, 2006). The coefficient for total assets, total number of subsidiaries and number of foreign subsidiaries, receivables and inventories are expected to be positive and the coefficient for tenure is expected to be negative. All the firms in our sample have a Big Four auditor, thus we do not control for it. We also include two additional control variables to capture differences in client risks, namely financial leverage (Stein *et al.*, 1994; Felix *et al.*, 2001; Messier *et al.*,

2011) and current ratio (Goodwin-Stewart & Kent, 2006; Johl *et al.*, 2012). The coefficient for financial leverage is expected to be positive, whereas the predicted direction for current ratio is negative (Abbott *et al.*, 2003). Similar to Felix *et al.* (2001), we also control for differences in the audit client's internal control environment using a variable (RELCON) indicating the level of reliance, with '0' indicating moderate level and '1' indicating an extensive level, placed on the audit client's system of internal control. We expect a negative relationship between RELCON and audit fees. We also control for industry differences; in particular, we control for three sectors of industries, namely trading and services (TRADING), industrial product (INDUSTRIAL) and financial (FINANCE).

RESULTS AND DISCUSSION

Descriptive statistics

Table 3 presents descriptive statistics for the variables used in our study. The mean audit fees for our sample is Ringgit Malaysia (RM) RM676,142, ranging from RM41,750 to RM9,100,000. Panel B of Table 3 provides descriptive statistics for experimental variables. The external auditors perceived the quality of IAF to be reasonable, with the mean percentage (IAFQ) of 43.78 percent, ranging from 0 percent to 80 percent. However, the perception of external auditors in relation to IAF

Table 3: Descriptive statistics

Variables	Min	Max	Mean	Std. dev	Median
Panel A: Dependent variable					
FEES (RM000)	41.75	9,100.00	676	1234.8	313.12
LNFEES	10.64	16.2	12.67	1.14	12.67
Panel B: Experimental variables					
IAFQ (%)	0	80	43.78	13.42	40
IACONTRB (%)	0	70	5.95	12.6	0
IAQINDEX	0	9	4	2.81	3
Panel C: Client attributes					
TENURE	1	10	4.15	1.94	4
RELCON	0	1	0.26	0.43	0
ASSET (RM000)	1,770.64	113,526,000	10,340,871	22,702,448	1,733,786
LNASSET	14.39	25.46	21.44	1.86	21.27
SUB	0	445	33.54	56.42	15
LNSUB	0	6.1	2.84	1.21	2.74
FOREIGN	0	159	6.45	19.12	1
RECEIVABLES	0	0.63	0.13	0.15	0.09
INVENTORY	0	0.53	0.08	0.11	0.02
ROA	-0.17	1.49	0.07	0.18	0.04
CURRENT	0	30.41	2.74	4.15	1.64
LEVERAGE	0	21.26	1.23	3.12	0.47

LNFEES = natural logarithm of audit fees. IAFQ = external auditors' assessment of the quality of their clients' IAF (0–100%). IACONTRB = external auditors assessment of percentage of IA contribution to financial statement audit. IAQINDEX = score based on nine variables CAEXP, IATENURE, IASIZE, IACERT, IAINDUST, IAAUDIT, IAICT, TRAINING and IAFREQ (as defined in Table 2). A score of 1 is given for each of the nine IAF attributes if the value is above median. TENURE = Average tenure of external auditors with the clients' firms. RELCON = external auditors' reliance on company internal control system (0 = Moderate, 1 = Extensive). 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.

contribution to external audit (IACONTRB) is rather low. IAF contributed on average 5.95 percent of the work necessary to complete the external audit with a range of 0 percent to 70 percent. Table 4 reports correlations between variables included in our audit fees model. The results show that audit fees have a positive correlation with firm size, subsidiaries, audit tenure, and auditor reliance on internal controls. We also find our experimental variables IACONTRB and IAFQ have a positive correlation with audit fees.

Multivariate analysis

Table 5 reports the results of the ordinary least square (OLS) regression test for our sample of 74 respondent firms. We first regressed audit fees on the control variables (without the experimental variables) to test the validity of our model (Table 5, Estimation 1) followed by our second and third estimations in relation to hypotheses 1, 2 and 3. As shown in Table 5, the *F*-statistics for each of the OLS regression models is significant across all estimations with adjusted R^2 higher than 70 percent. This result is comparable with other studies conducted in the US, Australia, New Zealand and Malaysia.⁶ Consistent with past audit fees studies, the control variables are significant with the exception of INVENTORY, ROA, LEVERAGE and TENURE.⁷ We find that the coefficients for all the traditional variables used in audit fees models, namely LNASSET, LNSUB, FOREIGN, RECEIVABLES and CURRENT, are statistically significant and in the right direction across all estimations.

Estimations 2 and 3 in Table 5 provide the results of tests for hypotheses 1, 2 and 3. Hypothesis 1 predicts a positive association between IAFQ and audit fees. We find a positive and significant coefficient for IAFQ

(Estimation 2: 0.10, $t = 1.369$, $p < 0.10$, one-tailed; Estimation 3: 0.12, $t = 1.686$, $p < 0.05$, one-tailed), thus we find support for hypothesis 1. Consistent with the complementary controls perspective, we find IAFQ is associated with an increase in audit fees. The findings are also consistent with Goodwin-Stewart and Kent (2006) and Hay *et al.* (2008), which suggests that IAF's roles in organizations are complementary rather than a substitute for external audit. In other words, in the Malaysian context our results suggest that various governance mechanisms in an organization, such as audit committees and boards of directors, are more likely to demand higher quality audit and invest in both control mechanisms (internal and external auditing) in order to protect their reputational capital (Knechel & Willekens, 2006; Zaman *et al.*, 2011).

Our analysis provides support for hypothesis 2, which predicts that the contribution of IAF to external audit reduces audit fees. The coefficient for IACONTRB is negative and significant (Estimation 2: -0.23 , $t = -1.469$, $p < 0.10$, one-tailed; Estimation 3: -0.98 , $t = -1.663$, $p < 0.05$, one-tailed). This is consistent with the results of prior studies such as Felix *et al.* (2001), Prawitt *et al.* (2009) and Mohamed *et al.* (2012). The negative relationship between IAF contribution to external audit (IACONTRB) and audit fees suggests that, as the extent of IAF contribution increases, there will be a significant reduction in external audit fees.⁸

We also find support for hypothesis 3, the multiplicative interaction term of IAF contribution to external audit (IACONTRB) and IAFQ is negative and significant (Estimation 3: -0.002 , $t = -2.113$, $p < 0.05$, one-tailed). This suggests that IAF contribution to external audit has a much stronger effect in lowering audit fees when IAFQ is high rather than when it is low. It further implies that the reliance of external auditors on

Table 4: Correlation coefficients

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1. LNFEES	1.000	0.666**	0.718**	0.520**	-0.089	-0.202	-0.060	-0.272*	-0.014	-0.068	0.151	0.017	0.086
2. LNASSET		1.000	0.446**	0.231*	-0.348**	-0.357**	-0.028	-0.156	-0.144	0.177	0.414**	0.0192	0.102
3. LNSUB			1.000	0.532**	-0.158	-0.220	0.062	-0.213	-0.052	-0.163	0.085	0.086	-0.054
4. FOREIGN				1.000	0.011	0.084	0.000	-0.078	-0.032	-0.238*	0.159	0.177	0.235*
5. RECEIVABLES					1.000	0.237*	-0.088	-0.170	-0.132	0.038	-0.236*	-0.120	0.053
6. INVENTORY						1.000	0.143	-0.145	-0.193	0.183	-0.004	0.190	0.044
7. ROA							1.000	0.015	-0.036	-0.142	0.173	0.549**	0.203
8. CURRENT								1.000	-0.070	-0.232*	-0.152	-0.050	-0.097
9. LEVERAGE									1.000	0.030	0.003	-0.054	0.050
10. TENURE										1.000	0.228	0.115	-0.038
11. RELCON											1.000	0.734**	0.437**
12. IACONTRB												1.000	0.562**
13. IAFQ													1.000

**Correlation is significant at $p < 0.01$ level (two-tailed), *Correlation is significant at $p < 0.05$ level (two-tailed). Table reports Pearson correlations.

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. TENURE = Average tenure of external auditors with the client's firms. RELCON = external auditors reliance on company internal control system (0 = Moderate, 1 = Extensive). IACONTRB = external auditors' assessment of IAF contribution to financial statement audit (0–100%). IAFQ = external auditors' assessment of the quality of their clients' IAF (0–100%).

Table 5: Regression results – effects of IA on audit fees

Variables	Predicted direction	Estimation 1 Coefficient (t-statistic) p-value*	Estimation 2 Coefficient (t-statistic) p-value*	Estimation 3 Coefficient (t-statistic) p-value*
CONSTANT		4.940(4.308) 0.000***	4.221 (3.453) 0.000***	4.396 (3.692) 0.000***
LNASSET	+	0.315 (5.762) 0.000***	0.328 (5.724) 0.000***	0.317 (5.666) 0.000***
LNSUB	+	0.380 (4.307) 0.000***	0.038 (4.115) 0.000***	0.375 (4.130) 0.000***
FOREIGN	+	0.009 (1.771) 0.041**	0.010 (1.890) 0.032**	0.012 (2.241) 0.0014***
RECEIVABLES	+	0.807 (1.527) 0.0615*	0.707 (1.197) 0.118	0.670 (1.166) 0.124
INVENTORY	+	0.547 (0.576) 0.566	0.600 (0.631) 0.531	0.058 (0.060) 0.952
ROA	-	-0.150 (-0.151) 0.878	-0.140 (-0.141) 0.888	-0.077 (-0.080) 0.993
CURRENT	-	-0.026 (-1.267) 0.105*	-0.022 (-1.031) 0.150	-0.025 (-1.212) 0.110*
LEVERAGE	+	-0.016 (-0.638) 0.526	-0.024 (-0.951) 0.346	-0.026 (-1.046) 0.300
TENURE	-	-0.047(-0.979) 0.331	-0.029 (-0.594) 0.555	-0.023 (-0.474) 0.637
RELCON	-		0.033 (0.104) 0.918	-0.532 (-1.293) 0.100*
IAFQ	+		0.010 (1.369) 0.088*	0.012 (1.686) 0.048**
IACONTRB	-		-0.023 (-1.469) 0.073*	-0.098 (-1.663) 0.050**
IAFQ*IACONTRB	-			-0.002 (-2.113) 0.0195**
R ²		0.724	0.741	0.760
Adjusted R ²		0.684	0.689	0.706
F-ratio		18.053	14.098	14.121
Significance F		0.000	0.000	0.000
Observations (n)		74	74	74

*p-values represent one tailed-test when direction of coefficient is consistent with expectation. *, **, ***, denotes p-value <0.10, 0.05, 0.01, respectively.

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. TENURE = Average tenure of external auditors with the clients' firms. RELCON = external auditors' reliance on company internal control system (0 = Moderate, 1 = Extensive). IAFQ = external auditors' assessment of the quality of their client's IAF (0–100%). IACONTRB = external auditors' assessment of IAF contribution to financial statement audit (0–100%). IAFQ*IACONTRB = the interaction between IAFQ and IACONTRB.

IAF is contingent upon their evaluation of IAFQ. For instance, if their assessment regarding the IAFQ of their audit clients is deemed to be adequate in terms of objectivity and competency and that higher quality IAF represents lower risk, external auditors are more likely to agree on the reduced audit scope by relying to a greater extent on IAF work. This cost saving is likely to be passed on to their audit clients, thus leading to a corresponding reduction in external audit fees charged by the external auditors to their audit clients.

Further tests

We conduct further tests to shed additional light on the relationship between IAFQ and audit fees and to ensure that our earlier results are not affected by any bias due to our use of external auditors' assessment of the quality of IAF of their audit clients.⁹ We also test for industry effects. We discuss the results of the further tests in the following.

IAF contribution, IAF quality index and audit fees

Prior studies have used several proxies to measure the quality of IAF (Goodwin-Stewart & Kent, 2006; Hay

et al., 2008; Ho & Hutchinson, 2010; Abbott et al., 2012a, 2012b; Lin et al., 2011). However, recent studies in this area have used more sophisticated and comprehensive measure of IAF quality attributes. Prawitt et al. (2009) measured IAF quality using an index that included IAF competence (proxied by IAF certification and training), IAF objectivity (proxied by the reporting line of CAE), IAF focus on financial work (the percentage of internal audit time spent performing financial audit) and IAF size. They found a positive relationship between the index and earnings quality. Similarly, Pizzini et al. (2015) used a similar approach and found that higher quality IAF contributes to shorter audit report lag.

Since our earlier measure of IAFQ relied on the external auditors' assessment of the quality of IAF,¹⁰ as an additional test we construct a comprehensive measure of IAF quality to cross-check the robustness of the proxy we used previously. In doing so we note that Prawitt et al. (2009: 1272) argued that 'the measure of overall internal audit quality derived from specific quality components is arguably a more precise measure of internal audit quality'.

Table 6: Additional analysis – IAQINDEX

Variables	Predicted direction	Estimation 1 Coefficient (t-statistic) p-value*	Estimation 2 Coefficient (t-statistic) p-value*	Estimation 3 Coefficient (t-statistic) p-value*	Estimation 4 Coefficient (t-statistic) p-value*
CONSTANT		5.114 (4.326) 0.000***	4.221 (3.453) 0.000***	4.832 (3.843) 0.000***	4.856 (3.944) 0.000***
LNASSET	+	0.298 (5.134) 0.000***	0.328 (5.724) 0.000***	0.299 (5.008) 0.000***	0.295 (5.051) 0.000***
LNSUB	+	0.354 (4.054) 0.000***	0.038 (4.115) 0.000***	0.371 (4.025) 0.000***	0.366 (4.053) 0.000***
FOREIGN	+	0.011 (2.016) 0.0022**	0.010 (1.890) 0.032**	0.010 (1.745) 0.043**	0.011 (2.072) 0.021**
RECEIVABLES	+	0.838 (1.470) 0.073*	0.707 (1.197) 0.110*	0.674 (1.154) 0.126	0.647 (1.132) 0.131
INVENTORY	+	0.199 (0.205) 0.465	0.600 (0.631) 0.531	0.712 (0.747) 0.458	0.199 (0.205) 0.839
ROA	-	-0.075 (0.079) 0.939	-0.140 (-0.141) 0.888	-0.094 (-0.090) 0.926	-0.029 (-0.080) 0.977
CURRENT	-	-0.023 (-1.171) 0.246	-0.022 (-1.031) 0.307	-0.019 (-0.928) 0.357	-0.022 (-1.113) 0.270
LEVERAGE	+	-0.025 (-0.955) 0.344	-0.024 (-0.951) 0.346	-0.025 (-0.995) 0.324	-0.027 (-1.066) 0.291
TENURE	-	-0.035 (-0.724) 0.472	-0.029 (-0.594) 0.555	-0.022 (-0.638) 0.526	-0.017 (-0.509) 0.613
RELCON	-	0.017 (0.054) 0.957	0.033 (0.104) 0.918	0.040 (0.127) 0.900	-0.470 (-1.136) 0.131
IAFQ	+		0.010 (1.369) 0.088*	0.010 (1.388) 0.085*	0.012 (1.667) 0.050**
IACONTRB	-	-0.012 (-1.318) 0.095*	-0.023 (-1.469) 0.073*	-0.024 (-1.668) 0.049**	-0.085 (-1.420) 0.080*
IAQINDEX	+	0.043 (1.367) 0.088*		0.042 (1.334) 0.090*	0.034 (1.046) 0.150
IAFQ*IACONTRB					-0.001 (-1.875) 0.033**
R ²		0.738	0.741	0.751	0.766
Adjusted R ²		0.695	0.689	0.695	0.708
F-ratio		17.197	14.098	13.461	13.293
Significance F		0.000	0.000	0.000	0.000
Observations (n)		74	74	74	74

*p-values represent one tailed-test when direction of coefficient is consistent with expectation. *, **, ***, denotes p-value < 0.10, 0.05, 0.01 respectively.

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, TENURE = Average tenure of external auditors with the clients' firms. RELCON = external auditors reliance on company internal control system (0 = Moderate, 1 = Extensive). IAFQ = external auditors' assessment of the quality of their client's IAF (0–100%). IACONTRB = external auditors' assessment of IAF contribution to financial statement audit. IAQINDEX = IAF quality index, a composite measure of the IAF quality (attributes as prescribed by ISA 620) and ranges between (0–9), with 0 indicating lowest quality and 9 highest quality. IAQINDEX scores consist of nine variables CAEEXP, IATENURE, IASIZE, IACERT, IAINDUST, IAAUDIT, IAICT, TRAINING and IAFREQ (as defined in Table 2). A score of 1 is given for each of the nine IAF attributes if the value is above median. IAFQ*IACONTRB = the interaction between IAFQ and IACONTRB.

We capture the overall effect of nine IAF attributes prescribed in ISA610 using IAQINDEX. The index is formed by aggregating the composite scores obtained from nine broad constructs: (i) number of years' experience as CAE (CAEEXP); (ii) the number of years IAF has existed in the organization (IATENURE); (iii) the number of IAF staff employed (IASIZE); (iv) the total number of IAF staff with professional qualifications (IACERT); (v) the total number of IAF staff with industry experience (IAINDUST); (vi) the total number IAF staff with auditing experience (IAAUDIT); (vii) the total number of IAF staff with ICT knowledge and experience (IAICT); (viii) average training hours attended by the IAF staff annually (TRAINING); (ix) the frequency of meetings between IAF and audit committee annually (IAFREQ).¹¹ Following Prawitt *et al.* (2009), we

dichotomize each of the nine individual variables by assigning a value of one to the variable if it is above the median of our sample for that variable, and zero otherwise. IAQINDEX is the sum of all the nine variables, '0' being the lowest quality and '9' the highest quality IAF.¹² We rerun the OLS regression model using the new variable IAQINDEX as a proxy for IAF quality (see Table 6). The results remain consistent with those reported in Table 5, and provide support for a positive relationship between IAQINDEX and audit fees across all estimations.

Industry analysis

As noted in prior studies (see Hay, Knechel & Wong, 2006; Causholli *et al.*, 2010), other client attributes, including client industry, can potentially affect audit effort and thus

audit fees. For instance, technology firms are considered more sophisticated and more complex and thus may require more effort to audit, whereas financial services firms (which are more regulated) may require less audit hours and thus result in lower audit fees (Stein *et al.*, 1994; Hackenbrack & Knechel, 1997). In this study, we control for three main sectors: trading and services (TRADING), industrial products (INDUSTRIAL) and financial firms (FINANCE). We included TRADING and INDUSTRIAL because we received a high level of responses from these sectors. FINANCE was controlled for because financial firms are highly regulated and thus might require less audit effort and pay lower audit fees. We did not control for technology sector because only two technology firms are included in our sample. After controlling for industry differences, our findings for all the experimental variables remain consistent with those we reported earlier. Our results (untabulated) do not reveal any significant industry effects, although the direction for the FINANCE sector is negative as predicted.

CONCLUSIONS AND LIMITATIONS

This study adds to the literature by examining the effect of IAFQ and IAF contribution to external audit on audit fees in the relatively less regulated and developing market context of Malaysia. Furthermore, we extend Felix *et al.* (2001) by testing the interaction effects between IAFQ and IAF contribution to external audit on audit fees from the assessment of external auditors. We provide an incremental contribution to the IAF literature by using matched responses from external and internal auditors. This contrasts with, for example, Messier *et al.* (2011), Prawitt *et al.* (2011) and Abbott *et al.* (2012a, 2012b), who relied solely on the assessment of internal auditors and thus are subject to self-reporting bias. While our findings are generally consistent with prior studies, we find that the extent of external auditors' reliance on IAF contribution to their work is contingent on the quality of the audit's clients IAF.¹³ Our analysis involves a multiple regression with a multiplicative interaction term between IAF contribution to external audit and IAFQ as a predictor of external audit fees. In doing so, we are able to capture the moderating effect of IAFQ on the relationship between IAF contribution to audit and audit fees. We derived both our measures of IAFQ and IAF contribution to external audit from the external auditors' responses to the questionnaire survey.

Our paper specifically contributes to the growing internal auditing literature in the following ways. First, our results bring together two competing perspectives on internal control and indicate that each perspective is relevant in distinct situations. In particular, we find that when firms have high quality IAF, they tend to invest more in internal and external monitoring. In addition our results suggest that high-quality IAF is likely to demand more in-depth work to be undertaken, especially in high risk areas, and result in more additional tests of control and inherent risks being covered by the external auditors. Our findings are consistent with Hay *et al.* (2008) and Hay (2013), who find a positive association between internal controls and audit fees. Additionally, we also find that audit fees are more likely to be lower depending on the extent of IAF contribution to external audit. The finding supports the results of prior studies obtained in developed country settings.

Second, we extend prior research such as that of Felix *et al.* (2001) by providing evidence that, although there is likely to be a reduction in audit fees as a consequence of the external auditors' reliance on IAF contribution to external audit, the reliance of external auditors on the IAF is contingent on the quality of IAF. More specifically, our results show that the negative relationship between the extent of external auditors' reliance on IAF contribution to external audit work and audit fees becomes stronger as IAFQ increases.¹⁴

Third, we also develop an additional proxy for IAF quality. Whereas Prawitt *et al.* (2009) used an index based on five IAF attributes, we use two proxies for IAF quality: IAFQ, which is the external auditors' assessment of their client's IAF quality, and IAQINDEX, which is an index incorporating nine IAF attributes stipulated in ISA610. Our evidence thus complements the earlier work by Prawitt *et al.* (2009) as well as the more recent work by Mohamed *et al.* (2012).

Finally, our findings are likely to be of interest to various parties interested in improving internal auditing and corporate governance. Our results provide support for standards requiring external auditors to assess the quality of IAF prior to the decision to rely on IAF work. They also support regulatory pronouncements encouraging greater coordination between internal and external auditors. In light of our findings, the management of companies, audit committees and boards of directors may consider exploring ways of improving the quality of IAF, as higher quality IAF can induce greater external auditor reliance and result in cost savings. The findings may also be of interest to auditing standard-setters, as it highlights the potential role of internal auditing in affecting the external audit process.

Our study is subject to a number of limitations. First, similar to Felix *et al.* (2001), the need to self-identify and the importance of receiving a matching response from internal and external auditors has resulted in a small sample size.¹⁵ Second, most of the internal auditors' responses are limited to large firms, while external auditors' responses are derived from Big Four audit firms. These highlight the potential for response bias, so generalization of our findings to other firms, especially in other countries and to other time periods, should be done with caution. Further, approximately 27 percent of the firms receiving our questionnaire fully outsourced their IAF. As such, we were not able to identify the outsourced IAF providers and do not have sufficient information on the extent to which external auditors may rely on outsourced IAF and the assessment of the quality of IAF for outsourced IAF firms. Thus, future research focusing on the relationship between outsourced IAF and external auditors will be interesting and timely, as the practice of IAF outsourcing is becoming more common globally (Munro & Stewart, 2010). Finally, as the institutional set-up in Malaysia includes various ethnicities and the existence of politically connected firms, future studies could examine the effect of diversity and political connection on the role, functioning and consequences of IAF on external audit and reporting quality.

NOTES

1. See AICPA (1997), AuASB (2006), IFAC (2009) and PCAOB (2007).

2. Internal auditors may contribute to the external audit either by working as assistants under the direct supervision of external auditors or by external auditors relying on the various audits and reviews independently performed by internal auditors throughout the year (Maletta, 1993).
3. Bursa Malaysia was formerly known as the Kuala Lumpur Stock Exchange (KLSE).
4. See SAS65 (AICPA, 1997) and PCAOB Standard No. 5 (PCAOB, 2007) in the US and ASA610 in Australia (AuASB, 2006).
5. As at December 31, 2005, the exchange rate was approximately RM3.80 = US\$1.
6. For instance, Felix *et al.* (2001) reported adjusted R^2 of 80 percent in the US, while the reported adjusted R^2 for Hay *et al.*'s (2008) study in New Zealand and Goodwin Stewart and Kent (2006) in Australia was 79 percent. Particularly in Malaysia, the reported adjusted R^2 is about 60 percent in Gul (2006); 69 percent in Yatim, Kent and Clarkson (2006) and 62 percent in Johl *et al.* (2012).
7. Although some prior audit fees studies find these variables significant, others have reported mixed results. For instance, Hay *et al.* (2006) find that 22 studies reveal a non-significant finding for leverage, 20 studies for auditor tenure, and 18 studies for profitability ratio. Most audit fees studies indicate that tenure is not a significant predictor of audit fees (Causholli *et al.*, 2010).
8. In Table 5, Estimation 3, RELCON, a binary variable (0 = moderate reliance and 1 = extensive reliance) which measures the extent of reliance placed by external auditors on the overall internal control systems, also suggests that when extensive reliance is being placed on the internal control systems, there will be some reduction in external audit fees.
9. The measurement of IAFQ was adopted from Felix *et al.* (2001).
10. We asked the external auditors to assess the quality of their audit clients' IAF on a scale from 0 percent to 100 percent.
11. We did not include reporting line as one of the variables in the IAFQ index because all the CAEs in our sample of 74 respondent firms report directly to the audit committee.
12. See Table 2 for detailed descriptions of the nine IAF attributes.
13. We concur with the results of prior studies (Stein *et al.*, 1994; Felix *et al.*, 2001; Prawitt *et al.*, 2009, 2011; Pizzini *et al.*, 2015) that reliance by external auditors on IAF work is more likely to improve an external audit process (i.e., lower audit fees, shorter audit delay and less earnings management).
14. Felix *et al.* (2001) tested the relationship between IAFQ and IAF contribution to external audit and they find a positive and significant relationship between IAFQ and IAF contribution to external audit. However, their study did not specifically explore how IAFQ moderates the relationship between IAF contribution to external audit and audit fees.
15. Our response rate is comparable to past studies such as Felix *et al.* (2001), who had 70 matching responses (11 percent response rate), and Mat Zain *et al.* (2006), who had 76 CAE respondents (17 percent response rate).

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