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Internal Auditing Outsourcing, Nonaudit Services and Audit Fees

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Internal Auditing Outsourcing, Nonaudit Services and Audit Fees

Abstract

This study examines the relationship between outsourced internal audits, nonaudit services and audit fees. We use Malaysian data to show that client firms that outsource their internal auditing function (IAF) are associated with lower external audit fees than those with in-house IAF. Moreover, this negative relationship is significantly stronger for firms that purchase greater amounts of nonaudit services (NAS) from the auditor. The results suggest that an auditor who provides NAS to a client and thus earns additional overall revenue is willing to accept lower audit fees provided a high audit quality can be achieved through reliance on outsourced IAFs.

I. INTRODUCTION

Studies suggest that internal auditing functions (IAFs) improve firms' internal controls and provide monitoring of firms' financial accounting and reporting processes [1] (Felix, Gramling, and Maletta 2001; Prawitt, Sharp, and Wood 2011; Mohamed, Mat Zain, Subramaniam, and Wan Yusoff 2012; Mat Zain, Zaman, and Mohamed 2015). Felix et al. (2001) conclude that the overall functionality of internal auditing functions through investment in internal audit quality and coordination of activities with external auditors will reduce audit fees. We extend this notion by investigating whether the sourcing of IAFs, either outsourced or in-house arrangements, matters. The extant literature suggests that outsourced internal auditors are perceived as more objective and heavily relied upon in reducing the risk

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[1] A client's internal audit division is a component of its internal controls (see Statement on Auditing Standards (SAS) No. 94, AICPA 2001; International Standard on Auditing (ISA) No. 330, IFAC 2009) and auditing standards recognize that the control risk assessments by external auditors may affect the audit procedures performed in the financial statement audit.

assumed by external auditors (Glover, Prawitt, and Wood 2008). Based on this argument, we first test using Malaysian data whether there is a negative relationship between outsourced IAFs and audit fees. The primary benefit of using Malaysian data is the mandated disclosure of IAF sourcing arrangements and related costs. We next test whether nonaudit services (NAS) affect the negative relationship between outsourced IAFs and external audit fees. Based on an overall revenue generation perspective (Kinney, Palmrose, and Scholz 2004; Causholli, Chambers, and Payne 2014), we predict that auditors who provide NAS to client firms while utilizing outsourced IAFs are likely to discount their audit fees further because of higher overall revenue.

This study is motivated by three factors. First, two prior studies examining the effect of IAF sourcing arrangements on audit fees provide mixed results. Prawitt et al. (2011) find that there is no relationship between the internal audit work outsourced to the external provider and audit fees, while Abbott, Parker, and Peters (2012, 108) show that hours of outsourced internal auditor assistance provided in the financial statement audit are associated with a slightly greater reduction in audit fees than hours of in-house internal audit assistance.

Examining the role of IAF sourcing on audit fees is important to better understand how audit fees are determined. Since financial statement audit assistance can be used as a means to manage external audit costs (Abbott et al. 2012) and since internal and external auditors may serve as alternative monitoring mechanisms (Simunic 1980; Felix et al. 2001), the costs associated with both IAFs and external auditing are of interest to auditors and clients.

Second, there are a limited number of studies on IAF sourcing arrangements and audit fees to date, and these have mostly been conducted in the U.S. (Gramling, Maletta, Schneider, and Church 2004). Thus, the results may not be generalizable to other countries, especially emerging economies, such as Malaysia. While the U.S. is a developed country that is characterized by strong investor protection and securities laws and higher levels of litigation

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risk (see Khurana and Raman 2004), Malaysia is a developing economy with weak investor protection and low litigation risk.

Third, prior studies have not considered the joint role of NAS and IAF sourcing in the audit fee determination process, although NAS is a large component of the auditor's revenue stream. In this paper, we consider how revenue generation could affect the determination of audit fees via the audit fee discount that the auditor may give to clients who purchase high levels of NAS.

The results, using a sample of 3,623 firm-year observations of Malaysian listed firms for the period 2007-2011, show that audit fees charged to audit clients are significantly lower when audit clients outsource their IAF; firms that outsource pay, on average, 26 percent less than firms with in-house IAF. In addition, we find that the negative association is significantly stronger for audit firms providing greater amounts of NAS to a client with outsourced IAF; firms that outsource IAF pay, on average, between 35 and 37 percent less in audit fees than firms with in-house IAF, when the firm's NAS fees are between the median and 75 percent quartile values. These results suggest that auditors are willing to discount audit fees for firms that outsource their IAF and that auditors who receive higher NAS fees are willing to discount audit fees even further, assuming that high audit quality is maintained when the client outsources its IAF.

The findings of this study contribute to the auditing literature in the following ways. First, this study provides Malaysian archival-based evidence on the effect of in-house versus outsourced IAF on audit fees and, in this way, adds to prior studies that use experimental and survey approaches based on the U.S. setting (e.g., Desai, Gerard, and Tripathy 2011). More specifically, this study supplements the audit fees literature by showing that IAF outsourcing translates into cost savings for clients in terms of lower audit fees. Furthermore, the cost savings are even higher for client firms that purchase greater amounts of NAS from their

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external auditors. Second, while prior studies have considered IAF and NAS separately, no study that we are aware of has integrated the IAF and NAS literatures. Such an integrated view, especially with an "overall revenue-generating perspective" of both IAF sourcing and NAS, provides a better understanding of the linkage between IAF and audit fees. Taken as a whole, our study is useful in advancing our understanding of audit pricing, particularly in a less developed economy, Malaysia.

Section II summarizes Malaysia's internal audit market, including in-house and outsourced IAF arrangements. Section III discusses the development of hypotheses. Section IV describes the sample and methodology adopted for this study. The results and robustness tests are discussed in Section V, while additional tests are discussed in Section VI. The conclusion is presented in Section VII.

II. BACKGROUND

Internal Audits in Malaysia

The significant role of IAF in Malaysia has been highlighted since 1997 due to the Asian financial crisis in 1997/1998. In 1999, the High-Level Finance Committee on Corporate Governance was formed by the Ministry of Finance to establish the corporate governance framework in Malaysia. The first version of the Malaysian Code on Corporate Governance (henceforth MCCG), introduced in 2000, specifically required the boards of listed firms to establish IAFs and maintain sound systems of internal controls. Consequently, the Kuala Lumpur Stock Exchange adopted part of the recommendations of the MCCG, requiring publicly listed firms (PLFs) to disclose a "Statement on Internal Control" in their

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annual reports, and this statement was required to clearly discuss the extent of the internal control systems of the company (MCCG, Paragraph 15.27).[2]

The MCCG was revised in 2007, with the roles of IAF being further emphasized. Some of the reforms included mandating the establishment of IAF (either in-house or outsourced) for all listed entities, identifying the Chief Audit Executive (CAE), who is the head of IAF, and requiring the CAE to report directly to the audit committee and be responsible for regular review of risk management, internal controls, and governance processes within the firm. In addition, the MCCG (2007) requires audit committees to review the adequacy of and competence of IAF, ensuring that the board solicits formal feedback on the adequacy of risk management and internal controls from the CAE, at least once annually; it also requires the disclosure of information on IAF in the annual reports of listed entities.

In 2008, the Bursa Malaysia Listing Requirements adopted the recommendations of the MCCG and made it mandatory for all PLFs to establish an IAF (either outsourced or in-house) with a direct reporting line to the audit committee. Furthermore, the Bursa Malaysia Listing Requirements mandate that the PLFs provide information pertaining to the sourcing arrangements of IAFs and the costs incurred for IAFs during the financial year.

Related IAF and Audit Fees Literature

Prior IAF-related studies using audit fees as the dependent variable have examined various dimensions of IAF. For example, studies using a survey approach or a combination of survey and archival data show that there is a negative association between IA contribution and audit fees (e.g., Prawitt et al. 2011; Abbott et al. 2012). In particular, Prawitt et al. (2011) report that the time spent working by the IA staff under the direct supervision of the external auditor

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[2] In 2001, the Securities Commission in Malaysia appointed the Institute of Internal Auditors Malaysia (IIAM) to form a task force to formulate guidelines pertaining to the establishment of IAF. The guidelines on the establishment of IAF were officially launched in 2002.

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is associated with reduced audit fees. Other studies focus on the relationship between in-house versus outsourcing IAFs and audit fees. For example, Abbott et al. (2012), using a survey of chief internal auditors, show that hours of outsourced internal audit assistance provided to external auditors are associated with a slightly greater reduction in audit fees than hours of in-house audit assistance. Desai et al. (2011), using an experimental approach, show that outsourcing the IAF is associated with lower audit effort and fees. In their extended analysis of IAFs, Prawitt et al. (2011) document that the percentage of internal audit work outsourced is, however, not significantly related to external audit fees. Thus, research on the effect of outsourced IAFs on audit fees is relatively scarce, and the results are mixed.[3]

Sourcing Arrangements of Internal Auditing Functions and Auditor Reliance

In the U.S, the Institute of Internal Auditors (IIA 2004) has revised the definition of IAF to include the role of internal auditors as providers of consulting services to management while still assuming the traditional assurance services role. This reflects transformation from the traditional role of internal auditors as watchdogs of controls to value-added business advisors (Ahlawat and Lowe 2004; Munro and Stewart 2010). The Bursa Malaysia Listing Requirements (2008) have mirrored these initiatives. Listed firms are allowed to either form IAF internally or outsource it to external providers. Similar to the New York Stock Exchange (NYSE) rules and Sarbanes-Oxley Act (2002) requirements, listed firms in Malaysia are prohibited from outsourcing the IAF to their auditors.

The recent trend of outsourcing IAF suggests that outsourcing has become important and generally is a widespread activity in many organizations (Gorg, Hanley, and Strobl

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[3] While Prawitt, Sharp, and Wood (2012) adopted a survey approach to examine the effect of IAF outsourcing on external auditor's assessment of accounting risk rather than on audit fees, they draw attention to other important outsourcing issues to be considered, such as the cost of the outsourcing arrangement and the effects of IAF sourcing on external audit fees (1112, footnote 6).

2004). Abdolmohammadi (2013) examines several correlates of cosourcing (a blend of both the in-house and outsourced IAFs) and outsourcing of internal audit activities in Australia, Canada, New Zealand, South Africa, the UK/Ireland and the U.S. This study indicates that 621 (58.7 percent) of the responding firms either outsourced or cosourced their IAF. However, it should be noted that all client firms in the present Malaysian study have IAFs that are either outsourced or in-house.[4]

Prior studies have discussed the differences between in-house and outsourced internal audit service providers (see Ahlawat and Lowe 2004; Glover et al. 2008; Desai et al. 2011). In particular, Ahlawat and Lowe (2004) show that outsourced and in-house internal auditors advocate management's position when selling/purchasing a new division. However, outsourced internal auditors advocate management's position to a lesser degree than in-house internal auditors. Glover et al. (2008) find that external auditors' reliance on IAFs is attributed to the interaction between whether the IAF is outsourced and the level of inherent risk. Their results suggest that when inherent risk is low, external auditors' reliance on IAF is the same regardless of whether the IAF is in-house or outsourced, but when inherent risk is high, external auditors rely largely on the outsourced IAF. Gramling and Vandervelde (2006) suggest that external auditors value internal auditors who are more objective and independent and who are not employees of the organization. Desai et al. (2011) find that external auditors' assessment of the objectivity and competence of internal auditors is greater for cosourced and

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[4] Firms disclose information on IAF in the Statement of Corporate Governance in their annual reports, which is mandated under the Bursa Malaysia Listing Requirements (Chapter 15, para 25). This statement clearly specifies whether the IAFs are being outsourced to a third-party professional firm or conducted in-house. The costs associated with either outsourced or in-house IAFs are often also disclosed in the Statement of Corporate Governance, Statement of Internal Control or Audit Committee Report. There is no indication in these statements or report by any of our sample firms that their IAFs are cosourced. This data was carefully hand-collected from the annual reports by one of the coauthors and a research assistant, and this process was time-consuming. Please refer to Appendix B for an example of data collection.

outsourced IAFs than for in-house IAF; thus, greater reliance is placed on outsourced and cosourced IAFs.[5]

III. HYPOTHESES

Outsourced IAF and Audit Fees

In light of the above discussion, we expect that if external auditors are more likely to rely largely on the work performed by outsourced internal auditors than in-house internal auditors, then audit fees will be lower.[6] Based on past studies such Felix et al. (2001), greater reliance on the IAF is expected to result in cost savings for the organization, as reflected in lower external audit fees charged to the client. Since the work performed by internal auditors is routinely used by external auditors in financial statement audits (Felix et al. 2001; Prawitt et al. 2011; Abbott et al. 2012), the question of whether IAF outsourcing is associated with lower audit fees than in-house IAF is empirical. The above discussion leads to our first hypothesis (*H₁*):

> *H₁: Firms that outsource their IAFs are likely to be associated with lower external audit fees than firms with in-house IAFs.*

Outsourced IAF, Nonaudit Services Fees and Audit Fees

Unlike the practice in the U.S.,[7] the Malaysian Institute of Accountants' (MIA) By-Laws (on Professional Conduct and Ethics, 2010) do not specifically prohibit auditors in

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[5] It may be argued that outsourcing the IAF provides the organization with a greater level of assurance and risk coverage, cost flexibility and scalability, better operational efficiency, better skill set and deeper industry specialization on an as-needed basis, more intellectual capital, improved access to leading edge tools and methodologies such as data analytics, more effective business strategies and increased knowledge transfer to the organization (Grey 2014).

[6] More formally, following the audit risk model, when inherent or control risk is lower as a result of outsourcing internal audits, external auditors can increase detection risk by reducing substantive testing (see, for example, Hogan and Wilkins 2008).

[7] Section 10A (g) is added to the Securities Exchange Act of 1934 by Section 201 (g) of the Sarbanes–Oxley Act (2002). Section 10A(g) prohibits a registered public accounting firm from providing certain NAS to its audit clients, including "(a) bookkeeping or other services related to the accounting records or financial statements of

Malaysia from rendering certain NAS, except for IA services, to their clients. Auditors can provide NAS so long as the provision of NAS does not create a significant threat to the firm's professional independence, integrity, and objectivity. The revised MIA By-Laws (paragraph 290.156 to 290.161) further elaborate on the ethical rules and guidelines pertaining to the provision of NAS to audit clients. These rules allow auditors to provide NAS to audit clients at a level that might not be deemed to compromise independence.[8, 9]

Theory suggests that audit firms providing significant amounts of NAS are likely to be more economically dependent on their clients, thus leading to lower auditor independence (Levitt 2002). While some studies suggest that NAS adversely affect auditor independence using accounting accruals to measure reporting quality (e.g., Frankel, Johnson, and Nelson 2002), other studies show no association (e.g., Ashbaugh, LaFond, and Mayhew 2003), leading to the conclusion that the concerns about the auditor independence effect of NAS are "largely undocumented" (Kinney et al. 2004, 568).

Another perspective on NAS that has not been given much attention is its revenue-generating role and how this relates to audit fees. Levitt (2002) and Kinney et al. (2004), for example, point out that NAS fees generate more income for the auditor than audit fees. We argue that auditors who provide NAS to client firms and rely on high-quality outsourced IAFs (due to the perceived higher-quality audit assistance) are likely to earn higher overall revenue while charging lower external audit fees to keep the client happy. This argument is consistent

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the audit client; (b) financial information systems design and implementation; (c) appraisal or valuation services, fairness opinions, or contribution-in-kind reports; (d) actuarial services; (e) internal audit outsourcing services; (f) management functions or human resources; (g) broker or dealer, investment adviser, or investment banking services; (h) legal services and expert services unrelated to the audit; and (i) any other service that may be determined to be impermissible." Section 201 (h) of Sarbanes-Oxley Act (2002) allows for NAS such as tax services or those not described in Section 201 (g), provided they are approved by the audit committee.

[8] Paragraph 290.158 of the MIA By-Laws states: "[B]efore the firm accepts an engagement to provide a nonassurance service to an audit client, a determination shall be made as to whether providing such a service would create a threat to independence. In evaluating the significance of any threat created by a particular nonassurance service, consideration shall be given to any threat that the audit team has reason to believe is created by providing other related nonassurance services. If a threat is created that cannot be reduced to an acceptable level by the application of safeguards, the nonassurance service shall not be provided."

[9] It is worth noting that studies (e.g., Kinney et al. 2004; Prawitt et al. 2012) show that different types of NAS (such as tax and financial information systems design) affect audit quality.

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with the finding that auditors are willing to charge lower audit fees to entice the client to purchase more NAS in the future (Causholli et al. 2014) and consistent with the contention that the loss of NAS may require auditors to raise audit fees to maintain their level of revenue without compromising audit quality (Higgs and Skantz 2006). Furthermore, the importance of outsourced IAF to IAF reliance and enhanced audit efficiency can be related to Felix, Gramling, and Maletta's (2005) observation that external auditors appear to be more affected by client pressure and less concerned about internal audit quality and coordination when making internal audit reliance decisions for clients to whom significant NAS are also provided. Thus, given client pressure under conditions of providing significant amounts of audit services and NAS by the auditor, it is reasonable to expect that the auditor will tend to rely more on outsourced rather than in-house IAF. The above reasoning leads to the following hypothesis (H_2):

> H_2: The negative association between outsourced IAFs and audit fees is likely
>   to be stronger for client firms with higher NAS fees.

IV. RESEARCH METHOD

Data

The sample consists of 3,623 firm-year observations of firms listed on Bursa Malaysia during 2007-2011. We began the sample period with 2007 because, while the MCCG required the boards of listed firms to establish and maintain sound systems of internal controls as early as 2000, the MCCG was revised in 2007, further emphasizing the roles of IAFs, including mandating the establishment of IAFs (either in-house or outsourced). By using a five-year period, we are able to examine the impact of IAFs using a panel dataset. As shown in Table 1, an original sample of 3,650 firm-year observations was collected for firms

listed on Bursa Malaysia. One firm was eliminated from the sample due to its being the only firm reporting negative stockholders' equity. After merging the remaining sample of 3,649 observations with BvD's ORBIS financial database, 26 observations were deleted due to missing data, yielding a final sample of 3,623 firm-year observations.[10] Financial information regarding firm characteristics was downloaded from BvD's ORBIS.[11]

Data hand-collected from annual reports downloaded from Bursa Malaysia's website include IAF sourcing arrangements and costs associated with outsourced and in-house IAFs; audit and NAS fees; the number for both foreign and local subsidiaries; the number of independent directors on the board; the number of audit committee members with financial expertise; auditor and type of opinion issued; and fiscal year-end.

Appendix B presents a sample of the data collection. As discussed in footnote 4, firms disclose the information on the IAF in the Statement of Corporate Governance of their annual report, which is mandated under the Bursa Malaysia Listing Requirements (Chapter 15, para 25). While all firms disclosed the IAF sourcing arrangements in the sample, not all firms disclosed the costs of their IAF. To perform tests using the costs of the IAF sourcing arrangements reported later, firms in the sample not disclosing these costs were excluded.

{Table 1 about here}

Model

The following baseline model is used to test the hypotheses:

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[10] Since the panel data are unbalanced, we cannot construct a fixed dummy variable for each firm to control for unobservable firm-specific characteristics. Nevertheless, the dummy and continuous variables in the existing model should be sufficient to capture and control for observable characteristics in accordance with theory.
[11] BvD's ORBIS is a database provided by Bureau Van Dijk Electronic Publishing (better known as BvD), established in 1991. BvD specializes in private company data, corporate ownership including beneficial owners' data, M&A data, and financial strength metrics. Examples of articles using the BvD's ORBIS database that appear in leading accounting and economic journals are Markle (2016), and Morck, Yavuz, and Yeung (2011).

$$LN\_AF_{it} = a_0INTERCEPT_{it} + a_1IA\_OUTSOURCED_{it} + a_2LN\_NAF_{it} + a_3POLCON_{it} +$$
$$a_4LNASSETS_{it} + a_5DEBT_{it} + a_6LNFOREIGN_{it} + a_7LNLOCAL_{it} + a_8LOSS_{it} + a_9REC\_TA_{it} +$$
$$a_{10}INV\_TA_{it} + a_{11}ZSCORE_{it} + a_{12}ACFIN_{it} + a_{13}BODIND_{it} + a_{14}BIG4_{it} + a_{15}OPINION_{it} +$$
$$a_{16}YE_{it} + a_{17-21}INDUSTRIES_{it} + a_{22-25}PERIODS_{it} + e_{it}$$

(Equation 1)

Appendix A provides the variable definitions used in Equations 1 and 2.

Dependent and Independent Variables of Interest

Consistent with the prior audit fees literature (Hay, Knechel, and Wong 2006; Gul 2006), the dependent variable is the natural log transformation of audit fees (*LN_AF*). Two independent test variables are used. The first is an indicator variable that takes on the value of 1 if the client firm outsources its IAF to an external party *(IA_OUTSOURCED=1)*, and zero otherwise. In a sensitivity test that we report later, the IAF sourcing arrangements are alternatively measured using the costs of the IAFs.[12] Our approach is in contrast to Prawitt et al. (2011), who use a variable to measure the percentage of IA work outsourced, and Abbott et al. (2012), who use hours of outsourced and in-house auditor assistance. The second independent test variable is the natural log transformation of NAS fees (*LN_NAF*). A value of zero is assigned for firms with zero NAS.

Control Variables

In addition to the independent variables of interest, three categories of control variables are included. These are client, auditor, and engagement attributes.

Client and Auditor Attributes

Prior research (e.g., Simunic 1980; Davidson and Gist 1996; Hay et al. 2006) has established that larger, more complex, and riskier clients require greater audit effort, resulting

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[12] Since the IAF costs are not disclosed by all firms in the sample, our initial tests are carried out employing the dichotomous measure of sourcing arrangements based on 3,623 firm-year observations. Subsequently, we report tests using continuous IA costs measures based on a reduced sample of 1,082 firm-year observations.

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in higher audit fees. The natural log transformation of total assets (*LNASSETS*) is used as a proxy for firm size. The ratio of total debt to total equity (*DEBT*) is a proxy for leverage and business risk, and similar to *LNASSETS*, it is expected to be positively related to *LN_AF*. To control for client complexity, the natural log transformations of the number of local subsidiaries (*LNLOCAL*) and the number of foreign subsidiaries (*LNFOREIGN*) are used, and we expect positive relationships with *LN_AF*. To control for profitability, a dummy variable is assigned that takes on the value of 1 if the firm experiences a loss during the current year (*LOSS=1*), and zero otherwise.[13] Inventory (*INV_TA*) and receivables (*REC_TA*) scaled by total assets are used to control for the firm's inherent risk. A positive relationship is expected between both variables and *LN_AF*. To control for the relative financial distress across firms, the Altman Z-score (*ZSCORE*) from the bankruptcy prediction model is used. A negative relationship is expected between *ZSCORE* (Altman 1993) and *LN_AF*.

Following prior research (e.g., Abbott, Parker, Peters, and Raghunandan 2003; Gul, 2006; Abdul Wahab, Gist and Abdul Majid 2014), three corporate governance measures are included in the model as control variables since they have been shown to be associated with audit fees. These measures are the proportion of financial experts on the audit committee (*ACFIN*), the proportion of independent directors on the board of directors (*BODIND*), and the presence of politically connected firms (*POLCON*). Following Faccio (2006) and Gul (2006), a firm is considered to be politically connected if one or more of its large shareholders or top officers is a member of parliament, a minister or head of state, or closely related to a top government official. Following prior literature (e.g., Johnson and Mitton 2003; Faccio 2006; Gul 2006; Fung, Gul, and Radhakrishnan 2015), a spouse or dependent child is considered a close relative. While *ACFIN* and *BODIND* are expected to be negatively associated with audit fees, *POLCON* is expected to be positively associated with audit fees

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[13] For robustness purposes, another measure of profitability, return on assets (ROA=net income or net loss/total assets), is considered, and the results for the test variables remain statistically similar.

(Gul 2006). The control variable auditor size takes on the value of 1 if the client is audited by a Big 4 international auditor (*BIG4=1*), and zero otherwise. As documented in prior literature (e.g., Simunic 1980; Palmrose 1986; Gist 1994), *BIG4* is expected to be positively related to *LN_AF*.

Engagement Attributes

The type of audit opinion issued has been considered in prior audit fee studies (e.g., Simunic 1980; Francis 1984; Palmrose 1986). *OPINION* is set equal to 1 if the audit opinion is qualified for GAAP/IFRS departures or modified with respect to a going concern, and zero otherwise. A positive relationship is expected between *OPINION* and *LN_AF*. Another engagement attribute included in prior research is the fiscal year-end (e.g., Hay et al. 2006). A dummy variable (*YE*) takes on the value of 1 if the fiscal year end is December 31 and zero otherwise. A positive relationship between *YE* and *LN_AF* is expected since December 31 is a busy time of year for audits.

Dummy variables are also included to control for differences across industries and years (e.g., Stein, Simunic, and O'Keefe 1994; Hay et al. 2006; Scott and Gist 2013). *INDUSTRIES* captures the effect of different industries in Malaysia, while *PERIODS* are dummy variables representing the fiscal years of firms in the sample.[14]

Descriptive Statistics

Descriptive statistics are tabulated in Table 2. The mean audit fees (*AF*), as stated in the Malaysian currency of Malaysian Ringgit (RM), is 255,811, and the median value of *AF* is

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[14] Industries represented are Properties, Consumer, Industrial, Plantation, Technology, and Trading. These industries are based on Bursa Malaysia's classifications.

RM 138,296, as shown in Panel A. Panel B of Table 2 displays data for the independent variables of interest. The percentage of sample firms that outsourced their IAF (*IA_OUTSOURCED =1*) is 41.7. The mean and median of nonaudit fees (*NAF*) are RM 96,510 and RM 8,000, respectively.

Panel C of Table 2 reports information for client attributes. The average firm size (*ASSETS*) is RM 1.238 billion. The percentage of sample firms audited by a Big 4 international auditor is 63.8, as shown in Panel D (auditor attribute) of Table 2, and Panel E of Table 2 reports information for engagement attributes.

{Table 2 here}

V. RESULTS

Univariate Tests

Table 3 presents two-tailed tests for both Pearson and Spearman-rank (italicized) correlations of variables. The correlations between the two independent test variables and audit fees (*LN_AF*) are similar for both the Pearson and Spearman-rank correlations. The correlations between *IA_OUTSOURCED* and *LN_AF* are -0.283 (Pearson) and -0.302 (Spearman-rank), which are significant at the 0.01 level, lending initial support for a negative relationship between IAF outsourcing and audit fees. Correlations between *LN_NAF* and *LN_AF* are 0.238 (Pearson) and 0.292 (Spearman-rank), which are significant at the 0.01 level. The correlations between the independent variables do not appear to present a multicollinearity issue.

{Table 3 here}

Two-tailed tests of differences in variable means and medians between outsourced (*IA_OUTSOURCED=1*) and in-house (*IA_OUTSOURCED=0*) IAF sourcing arrangements are provided in Table 4. Mean audit fees (*LN_AF*), shown in Panel A, are significantly lower (p-value = 0.000) for firms that outsource IAF compared to firms with in-house IAF,

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providing preliminary support for hypothesis 1. Furthermore, firms that outsource their IAF have a significantly higher mean for log nonaudit fees (p-value = 0.000).

Panel C of Table 4 tabulates the results for client characteristics. Firms that outsource their IAF are significantly smaller (*LNASSETS*) than in-house firms. The significantly (p-value = 0.000) lower mean total assets for firms with outsourced IAF could partly account for the differences in audit and nonaudit fees discussed above.

Panel D of Table 4 shows that firms with in-house IAF are more likely to be audited by a Big 4 (*BIG4=1*) international auditor (p-value = 0.000). This is consistent with in-house firms in the sample being significantly larger than firms with outsourced IAF.[15]

{Table 4 here}

Test of Hypothesis 1- Internal Audit Sourcing and External Audit Fees

Table 5 presents the baseline regressions. For all regressions tabulated in this study, and as indicated in the various tables, a one-tailed significance level is reported for variables with an expected direction based on theory; otherwise, a two-tailed significance level is reported. Column 1 of Table 5 tabulates the regression results without the test variables *LN_NAF* and *IA_OUTSOURCED*. The adjusted R^2 for this model is 43.9 percent, which is comparable to other Malaysian audit fee studies, such as Gul (2006). The determinants of audit fees are significant and in the expected directions, with a few exceptions: *DEBT, LOSS*, *BODIND,* and *OPINION*.

Columns 2 and 3 of Table 5 show the regression results when test variables are included in the model. Column 2 documents a negative and significant relationship (-0.307, *p-*

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[15] One might expect that larger firms have more resources than smaller firms to invest in more effective in-house IAFs. The significantly (p-value = 0.01) negative correlations between *LNASSET* and *IA_OUTSOURCED* are -0.139 and -0.147 for the Pearson and Spearman–rank statistics, respectively, suggesting that larger firms are more likely to have in-house IAFs.

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value=0.01, one-tailed) between firms that outsource their IAF (*IA_OUTSOURCED = 1*) and

LN_AF, in support of *H₁*.[16] The economic impact is that firms with outsourced IAF pay on

average 26 percent less in audit fees than firms with in-house IAF.[17] This finding is consistent

with the proposition that outsourced IAF is more objective, offers greater technical

competency (Ahlawat and Lowe 2004; Desai et al. 2011), and represents a better control risk

environment for the organization (Felix et al. 2001) than in-house IAF. Thus, audit risk is

potentially lower for firms that outsource, resulting in lower audit effort and audit fees.[18] The

results of the control variables remain similar to those in Column 1. In the Column 3 full

model, *LN_NAF* is significantly and positively (0.008, *p-value=0.01, two-tailed*) related to

LN_AF, which is consistent with other studies (e.g., Simunic 1984; Abdul Wahab et al.

2014).[19] *LN_NAF* is essential to the testing of hypothesis 2, reported later.

{Table 5 here}

Self-Selection Test

Studies argue that auditor choice is likely to be endogenous and that treating it as an

exogenous variable may affect the findings (e.g., Ireland and Lennox 2002; Chaney, Jeter,

and Shivakumar 2004; Hamilton, Li, and Stokes 2008). The same argument could apply to

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[16] We did not expect the Bursa Malaysia requirement, i.e., that listed firms establish IAFs in 2008 with a two-year grace period, to affect the results (based on our sample period beginning with 2007), since this requirement was adopted from the MCCG, which mandated establishment of IAFs as early as 2000. To test this expectation, we ran separate regressions for pre-2008 (the 2007 fiscal year) and post-2008 (2009-2011 fiscal years), finding qualitatively similar results to those reported in Table 5.

[17] Following Craswell, Francis, and Taylor (1995) this is calculated as ($e^z - 1$), where z represents the coefficient of the variable *IA_OUTSOURCED* (-0.307) in column 2 of Table 5.

[18] The results for *IA_OUTSOURCED* (-0.262, *p-value=0.01, one-tailed*) are qualitatively similar when firms not purchasing NAS from the incumbent auditor are eliminated from the sample, resulting in a sample of 2,481 firm-year observations.

[19] To ascertain that the results are not affected by extreme observations or a few outliers, we winsorized the variables at the 5 and 95 percent levels and re-estimated the regression models. The estimation results (untabulated) with winsorized data are similar to those reported in Table 5. Furthermore, we reestimated the regression after removing six observations with extremely high values (i.e., over 200) for local subsidiaries (*LOCAL*) or foreign subsidiaries (*FOREIGN*). This resulted in the reduction of firm-year observations from 3,623 to 3,617. The *IA_OUTSOURCED* variable remained negative and significant (-0.306, *p-value=0.01, one-tailed*), and *LN_NAF* remained positive and significant (0.001, *p-value=0.05, two-tailed*).

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selectivity bias relating to IAF sourcing arrangements. Selection bias arises if the unobservable characteristics of firms outsourcing or with in-house IAF are systematically different from each other.

To examine whether selectivity bias is an issue for our analyses, we estimate a two-step treatment effect model (Lennox, Francis, and Wang 2012). In the first step, we estimate a probit regression to determine the likelihood of selecting an external party to provide IAF services and calculate the inverse Mills ratio (*IMR*) to be included in the second-step, the audit fees model (Equation 1). The following selection model (or first-stage model) is used:

$IA\_OUTSOURCED_{it} = b_0INTERCEPT_{it} + \boldsymbol{b_1FAMILY_{it}} + \boldsymbol{b_2INSTOWN_{it}} + b_3LN\_NAF_{it} + b_4POLCON_{it} + b_5LNASSETS_{it} + b_6DEBT_{it} + b_7LNFOREIGN_{it} + b_8LNLOCAL_{it} + b_9LOSS_{it} + b_{10}REC\_TA_{it} + b_{11}INV\_TA_{it} + b_{12}ZSCORE_{it} + b_{13}ACFIN_{it} + b_{14}BODIND_{it} + b_{15}BIG4_{it} + b_{16}OPINION_{it} + b_{17}YE_{it} + a_{18\text{-}22}INDUSTRIES_{it} + a_{23\text{-}26}PERIODS_{it} + e_{it}$

(Equation 2)

Two variables that are identified as our exclusion restrictions (in bold) do not appear in the audit fees model (Equation 1). The first variable is an indicator variable that takes on the value of 1 if the firm is a family-dominated business (*FAMILY*), defined as a firm with substantial common stock ownership of at least 20 percent by family members (Claessens, Djankov, and Lang 2000; Anderson and Reeb 2003; Wang 2006). We argue that because family firms consist of close family members who are likely to have compatible interests in terms of organizational and administrative controls and efficiency (Wang 2006), these firms are more likely to set up in-house IAFs. On the other hand, family firms could opt for an external party to provide IAF services to signal a good governance image to the investor. The second instrumental variable is institutional ownership (*INSTOWN*), which is measured by the percentage of the top five institutional shareholdings. We expect a higher likelihood of IAF outsourcing (than in-house IAF) for firms with high levels of institutional ownership.

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This expectation is based on the premise of good governance practices by institutional investors in Malaysia (e.g., see Abdul Wahab, How, and Verhoeven 2007). Both of these variables may be important for explaining IAF sourcing arrangements but are not generally viewed as common determinants of external audit fees. In Hay et al. (2006)'s meta-analysis of audit fees, family ownership and institutional ownership are not included as important determinants of audit fees.

We include the *IMR* computed from the selection model in the audit fees model (Equation 1). Column 1 of Table 6 presents the results of the selection regression (Equation 2). There is a negative association between *INSTOWN* and *IA_OUTSOURCED* (-0.004, *p-value=0.05, one-tailed*) and a positive association between *FAMILY* and *IA_OUTSOURCED* (0.131, *p-value=0.01, one-tailed*).[20]

Columns 2 and 3 of Table 6 present the main regressions without and with the inclusion of the *IMR*, respectively. The endogenous variable, *IA_OUTSOURCED*, remains significant at the 0.01 level (one-tailed) after the inclusion of the *IMR* (see column 3). Note that the *IMR* coefficient is significant, which suggests that the model might suffer from selection bias, and hence, there is a need to control for endogeneity.

{Table 6 here}

Endogeneity - Propensity Score Matching

As a sensitivity test, we also estimate our models using a propensity score matched (PSM) sample (LaLonde 1986). We computed predicted probabilities of using outsourced IAFs from the first-stage probit regression (Equation 2). For each treatment firm-year observation (i.e., outsourced IAF), a matched control (i.e., in-house IAF) firm-year

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[20] To test the suitability of exclusion restrictions, three separate tests are run. The first test is to run the selection model regression without any selection exclusion variables. The second and third tests consider only one exclusion variable individually: *FAMILY* or *INSTOWN*. All three tests yield *IMR* results similar to those reported in Table 6. The results for our main test variables remain statistically similar.

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observation is chosen based on the closest predicted probability (i.e., propensity score). The PSM method produces a matched sample of 2,396 firm-year observations (n=1,198 for the treatment group and n=1,198 for the control group) that meet the data requirements for testing H_1.[21] The results in Table 7 are similar to those in Table 5 (regressions for the test of H_1) and in Table 6. As shown in column 4 of Table 7, *IA_OUTSOURCED* is negatively and significantly (-0.294, *p-value=0.01, one-tailed*) associated with *LN_AF*, while *LN_NAF* is positively and significantly (0.011, *p-value=0.05, two-tailed*) associated with *LN_AF*.

{Table 7 here}

Test of Hypothesis 2 - Nonaudit Services Fees and Internal Audit Sourcing

The analysis in the baseline regressions is extended to examine the interaction between *IA_OUTSOURCED* and *LN_NAF*, presented in Column 2 of Table 8. The coefficient of the interaction term (*IA_OUTSOURCED*LN_NAF*) is negative and significant (-0.022, *p-value=0.01, one-tailed*), providing evidence in support of hypothesis H_2.[22] The economic impact is that firms with outsourced IAF pay on average between 35 and 37 percent less in audit fees than firms with in-house IAF, when the firm's NAS fees are between the median (*LN_NAF*=8.987) and 75 percent quartile (*LN_NAF*=10.003) values.[23] This finding indicates that the purchase of NAS influences the negative association between IAF sourcing arrangements and audit fees, consistent with our argument that auditors are willing to charge

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[21] The objective of PSM in addressing selection bias is to minimize the differences in the matching characteristics (referred to as covariate balancing) in order to minimize the possibility that the effect of IAF outsourcing on audit fees is confounded by firm characteristics that are systematically different between outsourced and in-house IAFs (DeFond, Erkens, and Zhang 2017). Dissimilar matched pairs, identified as those with differences in the propensity scores (the "caliper distance") greater than 0.05, are removed. Shipman, Swanquist, and Whited (2017) note that imposing a caliper is generally a best practice to decrease the likelihood of 'poor' matches and to improve covariate balance.

[22] The interaction, *IA_OUTSOURCED*LN_NAF*, remains negative and significant (-0.020, *p-value=0.01, one-tailed*) after removing firms with more than 200 local or foreign subsidiaries.

[23] Following Taplin (2016), we calculate the economic impact of a change in *LN_NAF* for client firms that outsource their IAFs as follows, using the coefficients for the IA outsourced and interaction variables in Column 2 of Table 8: *LN_AF* = (-0.150 – 0.022 *LN_NAF *IA_OUTSOURCED*).

lower audit fees to entice the client to purchase more NAS (thereby earning higher overall revenues), provided a high audit quality is maintained with high-quality outsourced IAF.[24]

{Table 8 here}

Internal Auditing Continuous Cost Measures

A continuous cost measure represents the entity's investment in IAF (Prawitt et al. 2009). Therefore, as a sensitivity test, we use IA costs. The total firm-year observations for this test are 1,082, with 477 relating to outsourced IAF and 605 relating to in-house IAF. Of the 477 firm-year observations with outsourced IAF, 40 (8.39%) relate to outsourcing to a Big 4 international auditor (which is not the incumbent external auditor). Based on our sample, client firms do not appear more likely to engage a Big 4 auditor for IAF services. We create the following continuous cost variables, *IAF_OUT* and *IAF_IN*, using the natural log transformations of the costs associated with the outsourced and in-house IAFs, respectively.[25] The mean (median) for the nontransformed *IAF_OUT* is RM 369,800 (RM 89,000), while the mean (median) for the nontransformed *IAF_IN* is RM 210,700 (RM 22,000). The mean and median differences between the variables are significant (*p-value<0.01, two-tailed*).

Table 9 reports the regression results. There is a negative and significant association between *IAF_OUT* and *LN_AF* (-0.026, *p-value=0.10, one-tailed*), as shown in Column 1. This finding provides further evidence in support of hypothesis 1. Column 2 of Table 9 tabulates the results when we include *LN_NAF,* which documents a positive and significant association (0.153, *p-value=0.01, one-tailed*). The inclusion of *LN_NAF* results in *IAF_OUT*

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[24] The results for *IA_OUTSOURCED*LN_NAF* (-0.128, *p-value=0.01, one-tailed*) are qualitatively similar when firms not purchasing NAS from the incumbent auditor are eliminated from the sample, resulting in a sample of 2,481 firm-year observations.

[25] When constructing the *IAF_OUT* variable, a value of zero is assigned to those observations with in-house IAF; likewise, when constructing the *IAF_IN* variable, a value of zero is assigned to those observations with outsourced IAF. This procedure has previously been used in audit research. For instance, Paterson and Valencia (2011) used this approach when examining the effects of the types of NAS on auditor independence. Appendix C illustrates the construction of these IA continuous cost measures.

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becoming nonsignificant (-0.019, *p-value>0.10, one-tailed*). However, Column 3 of Table 9 tabulates the regression results when including the interaction term *IAF_OUT*LN_NAF*. We find a negative and significant association (-0.019, *p-value=0.05, one-tailed*), providing additional evidence supporting hypothesis 2. That is, to secure more NAS (to increase overall revenues), the auditor is willing to make the client "happy" by discounting the audit fees even further. In contrast, and as expected, we do not find similar results for *IAF_IN*LN_NAF*.

{Table 9 here}

VI. ADDITIONAL TESTS – POLITICAL CONNECTIONS

Politically connected firms are an important institutional feature in the Malaysian corporate sector (Johnson and Mitton, 2003; Bliss and Gul 2012; Fung et al. 2015). We conduct additional tests to shed some light on whether agency costs possibly arising from political connections affect the relationship among IAF sourcing, NAS, and audit fees. Theory suggests that these firms suffer from both the traditional manager-shareholder agency problem and agency problems stemming from conflicts of interest among managers, politicians, shareholders, and ultimate owners (i.e., major shareholders) (Johnson and Mitton 2003; Faccio 2006). Based on theory and prior studies, a positive association between political connections and audit fees is expected. Since outsourced IAFs are likely to mitigate the potential higher agency costs of firms with *POLCON*, the expectation is that the positive association between *POLCON* and audit fees will be weaker for firms with outsourced IAF. Furthermore, this negative interaction between *POLCON* and outsourced IAF is expected to be weaker for firms with high NAS fees (*LN_NAF*) since auditors are unlikely to provide "discounted fees benefits" to firms with high agency costs of *POLCON*. In other words, the three-way interaction *(IA_OUTSOURCED*LN_NAF*POLCON)* is expected to be positive.

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To test this relationship, we use the binary measure of IAFs and add the interaction term *IA_OUTSOURCED*POLCON* to the model in column 2 of Table 8. The untabulated results show that the coefficient for the interaction term, *IA_OUTSOURCED*POLCON*, is negative and marginally significant (-0.195, *p-value=0.10, one-tailed)*, supporting our expectation that IA outsourcing weakens the positive association between *POLCON* and audit fees. To test whether the purchase of NAS (*LN_NAF*) affects the interaction between *IA_OUTSOURCED* and *POLCON*, a three-way interaction term (*IA_OUTSOURCED*LN_NAF*POLCON)* along with two other two-way interaction terms (i.e., *IA_OUTSOURCED*LN_NAF* and *LN_NAF*POLCON*) are included in the model for proper specification. The three-way interaction is not significant, suggesting that the purchase of NAS does not influence the interaction between *IA_OUTSOURCED* and *POLCON*.

A caveat is in order since the *POLCON* variable is treated as an entirely static measure over the five-year sample period, in spite of the likelihood of turnover in key government officials. Thus, caution should be taken when considering and attempting to make inferences about the results of analyses in this section.

VII. CONCLUSION

Malaysian data are used to examine the effect of IAF sourcing arrangements (outsourced versus in-house) on statutory audit fees and whether the auditor's provision of NAS affects this relationship. We find that audit fees charged by external auditors to the audit client are lower for outsourced IAF than for in-house IAF. It is possible that the IAF services provided by external providers are more independent of client management, have greater objectivity and are of sufficient competence to engender greater reliance by auditors on outsourced IAF (than in-house IAF) in the financial statement audit. Furthermore, we find that auditors are more likely to charge even lower audit fees for firms with high-quality

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outsourced IAF that purchase greater amounts of NAS, since NAS are likely to generate an overall increase in revenue for the auditor. The findings are robust to using continuous cost measures of IAFs. One implication of this study is that the sourcing arrangements of IAFs possibly affecting the auditor's reliance on them (in contributing to the financial statement audit) should be considered in the context of the firm's overall revenue generation from the different services rendered to the client.

Additional exploratory tests on the role of political connections show that it is associated with higher audit fees. However, the relationship is weaker for firms with outsourced IAF, suggesting that outsourced IAFs are likely to mitigate the potential agency costs associated with politically connected firms. When examining whether the purchase of NAS influences the interaction between IAF sourcing and political connections, the three-way interaction is not significantly related to audit fees.

This study is not without its limitations. Since it is the first to examine the effect of the interaction between IAF sourcing arrangements and the auditor's provision of NAS on audit fees, future research could probe the issue by using a qualitative approach, such as semistructured interviews, to validate the results further. Second, while we attempt to control for the selectivity bias inherent in the IAF sourcing arrangements variable, we acknowledge that there are inherent shortcomings in selection models (such as sensitivity to alternative exclusion restrictions). Nevertheless, in addition to controlling for selectivity bias by employing the inverse Mills ratio, propensity score matching is used as another test of robustness in controlling endogeneity while attempting to provide some degree of assurance that differences in characteristics between treatment and control group firms are not affecting inferences or otherwise driving the results. Finally, caution should be exercised when evaluating the results of the additional tests relating to the role of political connections. The identification and measurement of politically connected firms, for instance, is not without

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potential problems given that this variable is being treated as an entirely static measure over the sample period. These limitations provide fruitful avenues for future research.

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Table 1: Sample Selection

Description	Sample Size
Firm-year Observations 2007-2011[a]	3,650
Less negative equity firms[b]	(1)
Less observations with missing financial data[c]	(26)
Firm-year observations for final sample	3,623

[a] Our sample was developed starting with all audited Malaysian firms listed on Bursa Malaysia's stock exchange during the period of this study. There were 730 firms listed on the main board of Bursa Malaysia.

[b] The only firm with a negative stockholders' equity in the sample is deleted.

[c] This data was merged with BvD's ORBIS financial data, which resulted in 26 observations with missing data.
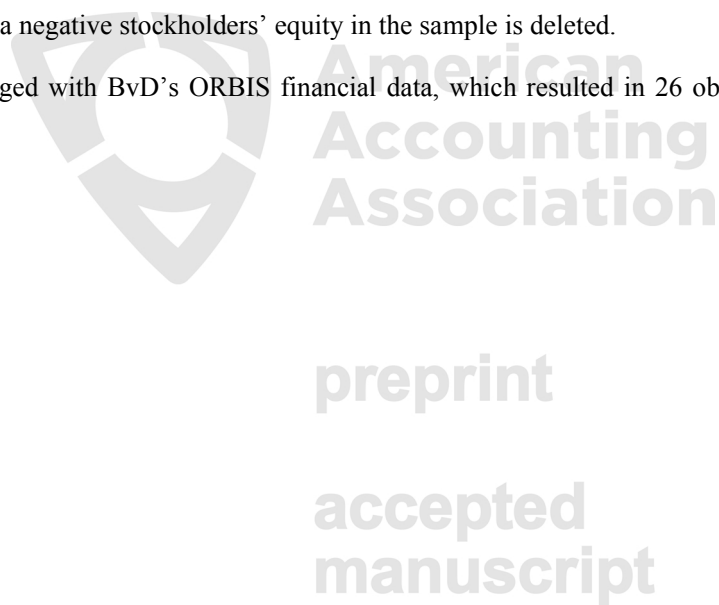
Table 2: Descriptive Statistics (n=3,623)

	Mean	Median	25 percentile	75 percentile	Std. Dev.
Panel A: Dependent Variable					
AF_{it}	255,811	138,296	81,000	203,000	678,581
LN_AF_{it}	11.840	11.837	11.302	12.221	0.906
Panel B: Independent Variables of Interest					
$IA\_OUTSOURCED_{it}$	0.417	0.000	0.000	1.000	0.493
NAF_{it}	96,510	8000	0.000	22,100	542,816
LN_NAF_{it}	6.929	8.987	0.000	10.003	4.901
Panel C: Client Attributes – Control Variable					
ASSETS (millions)	1238	279	104	748	4235
$LNASSETS_{it}$	19.551	19.446	18.459	20.432	1.507
$DEBT_{it}$	1.113	0.683	0.322	1.305	1.432
$FOREIGN_{it}$	2.802	0.001	0.001	0.001	10.471
$LNFOREIGN_{it}$	-3.254	-6.908	-6.908	0.000	4.042
$LOCAL_{it}$	11.138	6.000	0.001	10.000	17.309
$LNLOCAL_{it}$	0.716	1.792	-6.908	2.303	3.339
$LOSS_{it}$	0.176	0.000	0.000	0.000	0.381
REC_TA_{it}	0.143	0.117	0.030	0.215	0.139
INV_TA_{it}	0.118	0.070	0.007	0.162	0.209
$ZSCORE_{it}$	2.661	2.015	1.204	3.128	5.286
$ACFIN_{it}$	0.405	0.333	0.333	0.500	0.177
$BODIND_{it}$	0.447	0.429	0.354	0.500	0.133
$POLCON_{it}$	0.105	0.000	0.000	0.000	0.307
Panel D: Auditor Attribute- Control Variable					
$BIG4_{it}$	0.638	1.000	0.000	1.000	0.481
Panel E: Engagement Attributes- Control Variables					
$OPINION_{it}$	0.064	0.000	0.000	0.000	0.244
YE_{it}	0.593	1.000	0.000	1.000	0.491

All variables are defined in Appendix A.

Table 3: Correlations (n=3,623)

		1	2	3	5	6	7	8	9	10	11	12	13	14	4	15	16	17
LN_AF_{it}	1		-0.302***	0.292***	0.436***	0.164***	0.435***	0.424***	-0.061***	-0.015	-0.055***	-0.030*	-0.059***	0.010	0.312***	0.260***	-0.020	0.063***
$IA\_OUTSOURCED_{it}$	2	-0.283***		0.006	-0.147***	-0.071***	-0.091***	-0.038**	0.029*	0.030*	0.134***	0.018	0.025	-0.004	-0.119***	-0.180***	0.034**	-0.085***
LN_NAF_{it}	3	0.238***	0.066***		0.277***	0.038**	0.305***	0.350***	-0.085***	-0.108***	0.006	0.050***	-0.017	-0.014	0.195***	0.128***	-0.019	-0.??3***
$LNASSETS_{it}$	5	0.424***	-0.139***	0.258***		0.213***	0.213***	0.306***	-0.230***	-0.310***	-0.200***	-0.001	-0.048***	0.005	0.228***	0.135***	-0.027	-0.??5***
$DEBT_{it}$	6	0.091***	-0.032*	-0.014	0.140***		0.097***	0.109***	0.088***	0.105***	0.005	-0.444***	-0.004	0.025	0.069***	-0.030	0.077***	-0.??08
$LNFOREIGN_{it}$	7	0.432***	-0.072***	0.274***	0.193***	0.049***		0.432***	-0.040**	0.025	0.051***	-0.003	-0.021	0.032	0.156***	0.005	0.043***	-0.??00
$LNLOCAL_{it}$	8	0.231***	0.158***	0.434***	0.223***	0.024	0.412***		-0.054***	-0.049***	-0.053***	-0.043***	-0.032*	0.011	0.135***	-0.107***	0.094***	-0.??5***
$LOSS_{it}$	9	-0.066***	0.029	-0.092***	-0.229***	0.144***	-0.040**	-0.058***		0.052***	0.013	-0.274***	0.005	0.019	0.004	-0.039**	0.075***	0.??25
REC_TA_{it}	10	-0.025	-0.003	-0.088***	-0.297***	0.047***	0.014	-0.052***	0.062***		0.358***	0.139***	0.003	0.044***	-0.077***	-0.060***	-0.028*	0.??13
INV_TA_{it}	11	-0.041	0.096***	0.040**	-0.185***	-0.039**	0.010	0.039**	0.039**	0.169***		0.190***	-0.023	-0.012	-0.072***	-0.096***	-0.060***	-0.??42*
$ZSCORE_{it}$	12	-0.048***	0.008	0.018	0.011	-0.166***	-0.025	-0.067***	-0.098***	-0.016	-0.009		-0.017	0.003	-0.025	0.037**	-0.134***	-0.??5***
$ACFIN_{it}$	13	-0.061***	0.028	0.013	-0.034**	-0.022	-0.001	-0.009	-0.004	0.003	0.007	-0.018		-0.028*	-0.043***	0.006	0.010	-0.??13
$BODIND_{it}$	14	-0.002	0.014	-0.020	0.001	0.042**	0.013	0.005	0.026	0.033**	-0.016	0.006	-0.013		-0.011	-0.018	0.035**	-0.??07
$POLCON_{it}$	4	0.356***	-0.119***	0.150***	0.223***	0.087***	0.161***	0.219***	0.004	-0.056**	-0.097***	-0.065***	-0.045***	-0.002		0.088***	0.017	0.??01
$BIG4_{it}$	15	0.228***	-0.180***	0.069***	0.134***	-0.032*	-0.01	-0.218***	-0.039**	-0.041**	-0.038**	0.035**	-0.007	-0.024	0.088***		-0.067***	0.088***
$OPINION_{it}$	16	-0.026	0.034**	-0.017	-0.025	0.112***	0.044**	0.106***	0.075***	0.008	-0.041**	-0.056***	-0.003	0.033**	0.017	-0.067***		-0.??21
YE_{it}	17	0.032*	-0.085***	-0.132***	-0.060***	0.009	-0.098***	-0.278***	0.025	0.017	0.004	-0.031	-0.019	-0.020	0.001	0.088***	-0.021	

All variables are defined in Appendix A.

*, ** and *** denote 10%, 5% and 1% significance levels, respectively. Pearson and Spearman-rank (italicized) correlations are presented.

Table 4: Differences in Variable Means and Medians Between Outsourced and In-house IAFs (n=3,623)

	IA_OUTSOURCED=1(n=1,515)		IA_OUTSOURCED=0 (n=2,108)		t-test	Mann-Whitney
	Mean	Median	Mean	Median	p-value	p-value
Panel A: Dependent Variable						
AF_{it}	136,172	99,000	341,429	138,812	**0.000**	**0.000**
LN_AF_{it}	11.536	11.503	12.057	11.841	**0.000**	**0.000**
Panel B: Independent Variables of Interest						
NAF_{it}	35,741	9,996	139,998	7,350	**0.000**	**0.000**
LN_NAF_{it}	7.311	9.210	6.655	8.902	**0.000**	**0.000**
Panel C: Client Attributes- Control Variables						
ASSETS *(millions)*	722	216	1607	352	**0.015**	**0.000**
$LNASSETS_{it}$	19.304	19.192	19.729	19.680	**0.000**	**0.000**
$DEBT_{it}$	1.059	0.612	1.152	0.724	0.321	**0.017**
$FOREIGN_{it}$	1.387	0.001	3.815	0.001	**0.000**	**0.000**
$LNFOREIGN_{it}$	-3.595	-6.908	-3.009	-6.908	**0.000**	**0.000**
$LOCAL_{it}$	8.513	6.000	13.017	7.000	0.279	**0.000**
$LNLOCAL_{it}$	1.339	1.792	0.270	1.946	**0.000**	**0.000**
$LOSS_{it}$	0.189	0.000	0.167	0.000	(0.393)	
REC_TA_{it}	0.143	0.124	0.144	0.108	0.394	0.589
INV_TA_{it}	0.142	0.089	0.102	0.055	**0.000**	**0.000**
$ZSCORE_{it}$	2.711	2.085	2.626	1.976	0.670	0.373
$ACFIN_{it}$	0.411	0.333	0.401	0.333	**0.078**	0.219
$BODIND_{it}$	0.450	0.429	0.446	0.429	**0.054**	0.637
$POLCON_{it}$	0.062	0.000	0.136	0.000	**(0.000)**	
Panel D: Auditor Attribute – Control Variable						
$BIG4_{it}$	0.536	1.000	0.711	1.000	**(0.000)**	
Panel E: Engagement Attributes – Control Variables						
$OPINION_{it}$	0.073	0.000	0.057	0.000	**(0.000)**	
YE_{it}	0.544	1.000	0.628	1.000	**(0.000)**	

All variables are defined in Appendix A.

Two-tailed tests with significant p-values in bold. Chi-square (χ^2) results are in parentheses.

Table 5: Regression Tests for H_1 – Internal Audit Outsourcing and Audit Fees
(n=3,623)

Variable	Expected Direction	LN_AF 1		LN_AF 2		LN_AF 3	
$INTERCEPT_{it}$	?	8.482		8.822		8.849	
		(28.522)	***	*(30.224)*	***	*(30.368)*	***
$IA\_OUTSOURCED_{it}$	-			-0.307		-0.310	
				(-8.071)	***	*(-8.155)*	***
LN_NAF_{it}	?					0.008	
						(2.163)	***
$LNASSETS_{it}$	+	0.172		0.159		0.155	
		(11.896)	***	*(11.234)*	***	*(10.943)*	***
$DEBT_{it}$	+	0.005		0.006		0.006	
		(0.377)		*(0.474)*		*0.526*	
$LNFOREIGN_{it}$	+	0.070		0.066		0.065	
		(13.869)	***	*(13.401)*	***	*(13.183)*	***
$LNLOCAL_{it}$	+	0.030		0.037		0.033	
		(4.534)	***	*(5.690)*	***	*(4.802)*	***
$LOSS_{it}$	+	0.037		0.038		0.040	
		(0.970)		*(1.020)*		*(1.082)*	
REC_TA_{it}	+	0.466		0.424		0.429	
		(3.371)	***	*(3.150)*	***	*(3.195)*	***
INV_TA_{it}	+	0.146		0.161		0.155	
		(1.889)	**	*(2.155)*	**	*(2.081)*	**
$ZSCORE_{it}$	-	-0.005		-0.005		-0.005	
		(-1.774)	**	*(-1.678)*	**	*(-1.748)*	**
$ACFIN_{it}$	-	-0.192		-0.177		-0.181	
		(-2.100)	**	*(-1.981)*	**	*(-2.039)*	**
$BODIND_{it}$	-	-0.025		-0.008		-0.003	
		(-0.200)		*(-0.063)*		*(-0.028)*	
$POLCON_{it}$	+	0.570		0.538		0.530	
		(8.439)	***	*(8.184)*	***	*(8.058)*	***
$BIG4_{it}$	+	0.357		0.328		0.316	
		(8.591)	***	*(8.085)*	***	*(7.760)*	***
$OPINION_{it}$	+	-0.151		-0.138		-0.132	
		(-2.380)	**	*(-2.233)*	**	*(-2.141)*	**
YE_{it}	+	0.125		0.117		0.118	
		(3.021)	***	*(2.904)*	***	*(2.931)*	***
Industry fixed	?	Yes		Yes		Yes	
Period fixed	?	Yes		Yes		Yes	
Adj R^2		0.439		0.463		0.464	
F-statistic		*119.367*	***	*126.181*	***	*121.986*	***

For each variable, reported numbers are Beta coefficient (top) and t-statistic in parentheses.

All variables are defined in Appendix A. *, ** and *** denote 10%, 5% and 1% significance levels, respectively, based on one-tailed test (except for variables with no directional expectation for which two-tailed test significance is reported).

Table 6: Self Selection Test (n=3,623)

Variable	IA_OUTSOURCED 1		LN_AF 2		LN_AF 3	
$INTERCEPT_{it}$	1.677		8.849		9.225	
	(4.387)	***	(30.368)	***	(30.593)	***
$FAMILY_{it}$	0.131					
	(2.717)	***				
$INSTOWN_{it}$	-0.004					
	(-2.461)	**				
$IA\_OUTSOURCED_{it}$			-0.310		-0.299	
			(-8.155)	***	(-7.925)	***
LN_NAF_{it}	0.013		0.008		0.017	
	(2.478)	**	(2.163)	**	(3.945)	***
$LNASSETS_{it}$	-0.125		0.155		0.062	
	(-6.923)	***	(10.943)	***	(2.459)	***
$DEBT_{it}$	0.011		0.006		0.013	
	(0.666)		(0.526)		(1.064)	
$LNFOREIGN_{it}$	-0.037		0.065		0.040	
	(-6.022)	***	(13.183)	***	(5.298)	***
$LNLOCAL_{it}$	0.059		0.033		0.081	
	(6.237)	***	(4.802)	***	(6.399)	***
$LOSS_{it}$	0.030		0.040		0.054	
	(0.488)		(1.082)		(1.452)	
REC_TA_{it}	-0.392		0.429		0.157	
	(-2.256)	**	(3.195)	***	(1.069)	
INV_TA_{it}	0.129		0.155		0.233	
	(1.145)		(2.081)	**	(3.075)	***
$ZSCORE_{it}$	0.004		-0.005		-0.002	
	(0.917)		(-1.748)	**	(-0.580)	
$ACFIN_{it}$	0.119		-0.181		-0.083	
	(0.961)		(-2.039)	**	(-0.922)	
$BODIND_{it}$	0.183		-0.003		0.123	
	(1.087)		(-0.028)		(0.995)	
$POLCON_{it}$	-0.298		0.530		0.273	
	(-3.732)	***	(8.058)	***	(3.123)	***
$BIG4_{it}$	-0.273		0.316		0.123	
	(-5.671)	***	(7.760)	***	(2.062)	**
$OPINION_{it}$	0.122		-0.132		-0.029	
	(1.359)		(-2.141)	**	(-0.441)	
YE_{it}	-0.049		0.118		0.076	
	(-1.047)		(2.931)	***	(1.850)	*
IMR_{it}					1.058	
					(4.469)	***
Industry fixed	Yes		Yes		Yes	
Period fixed	Yes		Yes		Yes	
McFadden/Adj R^2	0.114		0.464		0.470	
LR/F-statistics	561.929	***	121.986	***	120.377	***

For each variable, reported numbers are Beta coefficient (top) and t-statistic in parentheses.

All variables are defined in Appendix A. *, ** and *** denote 10%, 5% and 1% significance levels, respectively, based on one-tailed test.

Table 7: Propensity Score Matching (n=2,396)

Variable	Expected Direction	LN_AF 1		LN_AF 2		LN_AF 3		LN_AF 4	
$INTERCEPT_{it}$	?	8.127		8.314		8.176		8.361	
		(24.688)	***	*(25.894)*	***	*(24.915)*	***	*(26.122)*	***
$IA\_OUTSOURCED_{it}$	-			-0.295		0.012		-0.294	
				(-7.669)	***	*(2.762)*	***	*(-7.686)*	***
LN_NAF_{it}	?							0.011	
								(2.800)	**
$LNASSETS_{it}$	+	0.182		0.180		0.176		0.174	
		(11.238)	***	*(11.441)*	***	*(10.859)*	***	*(11.056)*	***
$DEBT_{it}$	+	0.010		0.010		0.010		0.010	
		(0.746)		*(0.758)*		*(0.802)*		*(0.815)*	
$LNFOREIGN_{it}$	+	0.064		0.064		0.063		0.063	
		(12.266)	***	*(12.609)*	***	*(11.998)*	***	*(12.335)*	***
$LNLOCAL_{it}$	+	0.056		0.054		0.052		0.050	
		(6.684)	***	*(6.654)*	***	*(6.082)*	***	*(6.046)*	***
$LOSS_{it}$	+	0.008		0.013		0.009		0.014	
		(0.191)		*(0.315)*		*(0.218)*		*(0.342)*	
REC_TA_{it}	+	0.511		0.542		0.509		0.540	
		(3.259)	***	*(3.557)*	***	*(3.261)*	***	*(3.559)*	***
INV_TA_{it}	+	0.115		0.120		0.105		0.110	
		(1.423)	*	*(1.531)*	*	*(1.305)*	*	*(1.411)*	*
$ZSCORE_{it}$	-	-0.003		-0.003		-0.003		-0.004	
		(-0.951)		*(-1.124)*		*(-1.059)*		*(-1.234)*	
$ACFIN_{it}$	-	-0.140		-0.138		-0.150		-0.147	
		(-1.368)	*	*(-1.385)*	*	*(-1.469)*	*	*(-1.487)*	*
$BODIND_{it}$	-	-0.016		-0.026		-0.007		-0.017	
		(-0.117)		*(-0.195)*		*(-0.051)*		*(-0.128)*	
$POLCON_{it}$	+	0.495		0.496		0.483		0.485	
		(6.288)	***	*(6.508)*	***	*(6.160)*	***	*(6.377)*	***
$BIG4_{it}$	+	0.307		0.312		0.289		0.294	
		(7.152)	***	*(7.483)*	***	*(6.696)*	***	*(7.017)*	***
$OPINION_{it}$	+	-0.119		-0.124		-0.109		-0.115	
		(-1.716)	*	*(-1.850)*	*	*(-1.581)*	*	*(-1.713)*	*
YE_{it}	+	0.127		0.119		0.125		0.117	
		(2.919)	***	*(2.823)*	***	*(2.894)*	***	*(2.797)*	***
Industry fixed	?	Yes		Yes		Yes		Yes	
Period fixed	?	Yes		Yes		Yes		Yes	
Adj R^2		0.380		0.409		0.383		0.412	
F-statistic		*62.186*	***	*67.406*	***	*60.511*	***	*65.650*	***
N treatment		1,198		1,198		1,198		1,198	
N control		1,198		1,198		1,198		1,198	

For each variable, reported numbers are Beta coefficient (top) and t-statistic in parentheses.

All variables are defined in Appendix A. *, ** and *** denote 10%, 5% and 1% significance levels, respectively, based on one-tailed test (except for variables with no directional expectation for which two-tailed test significance is reported).

Table 8: Regression Tests for H_2 - Interaction between Internal Auditing Outsourcing and Nonaudit Fees (n=3,623)

Variable	Expected Direction	LN_AF 1		LN_AF 2	
INTERCEPT$_{it}$	?	8.849		8.854	
		(30.368)	***	*(30.446)*	***
IA_OUTSOURCED$_{it}$	-	-0.310		-0.150	
		(-8.155)	***	*(-2.419)*	**
LN_NAF$_{it}$	?	0.008		0.017	
		(2.163)	**	*(3.589)*	***
IA_OUTSOURCED*LN_NAF$_{it}$	-			-0.022	
				(-3.188)	***
LNASSETS$_{it}$	+	0.155		0.152	
		(10.943)	***	*(10.685)*	***
DEBT$_{it}$	+	0.006		0.006	
		(0.526)		*(0.515)*	
LNFOREIGN$_{it}$	+	0.065		0.065	
		(13.183)	***	*(13.193)*	***
LNLOCAL$_{it}$	+	0.033		0.028	
		(4.802)	***	*(4.061)*	***
LOSS$_{it}$	+	0.040		0.039	
		(1.082)		*(1.057)*	
REC_TA$_{it}$	+	0.429		0.430	
		(3.195)	***	*(3.208)*	***
INV_TA$_{it}$	+	0.155		0.150	
		(2.081)	**	*(2.007)*	**
ZSCORE$_{it}$	-	-0.005		-0.005	
		(-1.748)	**	*(-1.776)*	**
ACFIN$_{it}$	-	-0.181		-0.176	
		(-2.039)	**	*(-1.985)*	**
BODIND$_{it}$	-	-0.003		-0.009	
		(-0.028)		*(-0.072)*	
POLCON$_{it}$	+	0.530		0.528	
		(8.058)	***	*(8.048)*	***
BIG4$_{it}$	+	0.316		0.321	
		(7.760)	***	*(7.901)*	***
OPINION$_{it}$	+	-0.132		-0.129	
		(-2.141)	**	*(-2.095)*	**
YE$_{it}$	+	0.118		0.123	
		(2.931)	***	*(3.053)*	***
Industry fixed	?	Yes		Yes	
Period fixed	?	Yes		Yes	
Adj R^2		0.464		0.467	
F-statistic		*121.986*	***	*118.734*	***

For each variable, reported numbers are Beta coefficient (top) and t-statistic in parentheses.

All variables are defined in Appendix A. *, ** and *** denote 10%, 5% and 1% significance levels, respectively, based on one-tailed test (except for variables with no directional expectation for which two-tailed test significance is reported).

Table 9: Main Regressions Using Continuous Cost Measures of IAFs
(n=1,082)

Variable	Expected Direction	LN_AF 1		LN_AF 2		LN_AF 3	
INTERCEPT$_{it}$	?	4.390		4.089		2.602	
		(8.855)	***	(8.945)	***	(2.219)	**
IAF_OUT$_{it}$	-	-0.026		-0.019		0.174	
		(-1.488)	*	(-1.212)		(1.821)	*
IAF_IN$_{it}$	-	-0.010		-0.006		0.095	
		(-0.583)		(-0.360)		(1.016)	
LN_NAF$_{it}$	?			0.153		0.301	
				(9.926)	***	(2.830)	***
IAF_OUT*LN_NAF$_{it}$	-					-0.019	
						(-2.072)	**
IAF_IN*LN_NAF$_{it}$	+					-0.010	
						(-1.096)	
Control variables		Included		Included		Included	
Industry fixed		Yes		Yes		Yes	
Period fixed		Yes		Yes		Yes	
Adj R^2		0.625		0.669		0.675	
F-statistic		70.202	***	82.013	***	78.469	***
N Outsourced IAFs		477		477		477	
N In-house IAFs		605		605		605	

For each variable, reported numbers are Beta coefficient (top) and t-statistic in parentheses.

All variables are defined in Appendix A, except IAF_OUT$_{it}$ and IAF_IN$_{it}$. IAF_OUT$_{it}$ and IAF_IN$_{it}$ are the costs associated with the outsourced and in-house IAFs, respectively. Please refer to Appendix C for an illustration of the construction of these internal auditing cost measures. *, ** and *** denote 10%, 5% and 1% significance levels, respectively, based on one-tailed test (except for variables with no directional expectation for which two-tailed test significance is reported).

Appendix A: Variable Definition

**	Variable	Definition	Source
Panel A: Dependent variables			
1	AF_{it}	Audit fees in Ringgit Malaysia (RM) (statutory)	Annual reports
2	LN_AF_{it}	Natural logarithm of audit fees	Annual reports
Panel B: Independent Variables of Interest			
3	$IA\_OUTSOURCED_{it}$	An indicator variable, 1 for outsourced internal auditing function, 0 otherwise	Annual reports
4	LN_NAF_{it}	Natural log transformation of nonaudit fees	Annual reports
Panel C: Client Attributes – Control Variables			
5	$LNASSETS_{it}$	Natural logarithm of total assets	ORBIS
6	$DEBT_{it}$	Total liabilities to total equity	ORBIS
7	$LNFOREIGN_{it}$	Natural logarithm of number of foreign subsidiaries	Annual reports
8	$LNLOCAL_{it}$	Natural logarithm of number of local subsidiaries	Annual reports
9	$LOSS_{it}$	An indicator variable that takes the value of 1 if the firm experience a loss in the current period	ORBIS
10	REC_TA_{it}	Total receivables scaled by total assets	ORBIS
11	INV_TA_{it}	Total inventories scaled by total assets	ORBIS
12	$ZSCORE_{it}$	Altman Z bankruptcy score	ORBIS
13	$ACFIN_{it}$	The proportion of audit committee members with financial expertise	Annual reports
14	$BODIND_{it}$	The proportion of independent directors on the board	Annual reports
15	$POLCON_{it}$	An indicator variable, 1 for politically connected firm, 0 otherwise	Johnson and Mitton (2003), Fung et al. (2015)
Panel D: Auditor Attribute – Control Variable			
16	$BIG4_{it}$	An indicator variable, 1 for Big 4 audit firm, 0 otherwise	Annual reports
Panel E: Engagement Attributes – Control Variables			
17	YE_{it}	An indicator variable, 1 for fiscal year ending 31st December, 0 otherwise.	Annual reports
18	$OPINION_{it}$	An indicator variable, 1 if the opinion is qualified for material departure from GAAP/IFRS or is unqualified but modified for going concern issue, 0 otherwise.	Annual reports
Panel F: Exclusion Restrictions for Self-selection Test			
19	$FAMILY_{it}$	An indicator variable, 1 for family dominated business, 0 otherwise. A family dominated business is defined as a firm with substantial common stock ownership of at least 20 percent by family members	Annual reports
20	$INSTOWN_{it}$	Percentage of the top five (5) institutional shareholdings	Annual reports

ORBIS is a database provided by Bureau Van Dijk Electronic Publishing (better known as BvD), established in 1991. They provide comprehensive company databases. BvD specializes in private company data, corporate ownership including beneficial owners' data, M&A data, and financial strength metrics.

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Appendix B: Sample of Data Collection for Internal Audit Sourcing (IA_OUTSOURCED) and Auditor Services (Audit and Nonaudit)

Company	Year	Internal Auditor	Purpose for internal audit	Internal Audit Cost	Source	External Auditor	Audit Fees	Nonaudit fees
Advance Packaging Technology (M) Bhd.	2011	Covenant Equity Consulting Berhad	To review certain functional areas to ensure best practices e adopted in internal control by the Company.	RM 13,000	Statement of Corporate Governance	PKF	RM 34,488 for statutory audit	RM 18,700 for taxation and other services
Complete Logistics Services Bhd	2011	In-house	To provide independent assessment of the adequacy, efficiency and effectiveness of the internal control system in the key activities of the Group	RM 68,025	Statement of Corporate Governance	Crowe Horwath	Rm 108,037 for statutory audit	Rm 5,000 (services are not mentioned)
Dolomite Corporation Bhd.	2011	RSM Corporate Consulting Sdn. Bhd.	The head of Outsourced Internal Audit function shall have unrestricted access to audit committee members and report directly to the audit committee whose scope of responsibility includes overseeing the internal audit function	RM 46,000	Statement of Internal Control	Crowe Horwath	RM 190,000 for statutory audit	RM 5,000 (services are not mentioned)
Heveaboard Berhad	2011	Audex Governance Sdn. Bhd.	To assists audit committee in discharging its duties and responsibilities by executing independent reviews to ensure adequacy and effectiveness of the internal control system	RM 62,108	Audit Committee Report	Baker Tilly Monteiro Heng	RM 79,000 for statutory audit	RM 39,435 (services are not mentioned)
Khind Berhad	2011	BDO Governance Advisory Sdn. Bhd	To assist the board in reviewing the adequacy and integrity of the Group's system of internal control	RM 54,000	Statement of Internal Control	KPMG	RM 156,000 for statutory audit	RM 12,000 (services are not mentioned)

Appendix B continued

Kretam Berhad	2011	KPMG	Carrying out a minimum of 4 cycles of internal audit at the Group's plantation and stockbroking divisions annually; ● Reviewing the revenue and expenditure cycles; ● Reviewing the internal controls implemented by the Group which do not include identifying risk areas; ● Verifying the risk management controls implemented in high risk profiles as identified by the Enterprise Risk Management Unit Leaders and reporting to the Risk Management Committee; ● Reviewing biannually the RRPTs entered into by the Group pursuant to the Proposed Shareholders' Mandate to ensure that the relevant approvals have been obtained and the review procedures in respect of such transactions are adhered to; ● Validating and making appropriate recommendations thereto; and ● Presenting their reports and findings to the operating personnel and the Audit Committee for comments and necessary action.	RM 73,198	Audit Committee Report	Ernst and Young	RM 230,000 for statutory audit	RM 81,750 (review of statement of internal control special audit and tax services)
KSL Holdings	2011	Outsourced to an independent internal audit firm	Focusing on key processes and principal risk areas of the operating units, in accordance with the internal audit plan	RM 25,000	Audit Committee Report	Ernst and Young	RM 142,500	RM 82,500 (services are not mentioned)
Sino Hua-An International Berhad	2011	In-house	Review the internal control process and to assess and provide sufficient assurance of the systems of internal control	RM 34,540	Audit committee Report	Morison Anuarul Azizan Chew	Rm 357,000	Rm 7,290 (services are not mentioned)

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Appendix C: Illustration of Construction of Internal Auditing Cost Measures

A	B	C[#]	D	E	F	G = (D X F)[@]	H = (E X F)[@]	Natural log transformation[*]		
Company	Year	IA_OUTSOURCED$_{it}$	Outsourced	In-house	Internal audit cost	(IAF_OUT$_{it}$)	(IAF_IN$_{it}$)	I	J	K
A	2009	1	1		20,000	20,000		9.903	0.000	9.903
	2010	1	1		3,000	3,000		8.006	0.000	8.006
B	2009	0		1	15,000		15,000	0.000	9.616	9.616
	2010	0		1	10,000		10,000	0.000	9.210	9.210

[#]Column C is IA_OUTSOURCED$_{it}$ which takes the value of 1 if the firm outsources its IAFs, zero otherwise. We then re-assign this variable into two separate variables and give them a value of 1: outsourced (column D) and in-house (Column E), to allow for calculation of two continuous internal audit costs variables.

[@] The costs associated with the new variables (columns D and E) are presented in columns G (IAF_OUT$_{it}$) and H (IAF_IN$_{it}$), respectively.

[*]These variables are then transformed into natural log figures. Columns I, J and K are examples of how columns in Table 9 are regressed. Our approach of assigning zeros to missing values (please refer to columns I and J of this Appendix C) is similar to the method used by Paterson and Valencia (2011).