

INTERNAL AUDIT QUALITY, AUDIT COMMITTEE INDEPENDENCE, GROWTH OPPORTUNITIES AND FIRM PERFORMANCE

Marion Hutchinson*, Mazlina Mat Zain**

Abstract

This study explores whether the relation between internal audit quality and firm performance is associated with firm characteristics of information asymmetry and uncertainty (growth opportunities) and certain governance controls (audit committee effectiveness). The results from this preliminary study of 60 Malaysian companies show that the association between internal audit quality and firm performance is stronger for firms with high growth opportunities and that this positive association is weakened by increasing audit committee independence. These findings demonstrate the internal auditors conflicting roles and question the governance recommendations that require all members of the audit committee to be non-executive directors.

Keywords: Growth opportunities, internal audits, audit committee, agency costs, firm performance

*Corresponding author. School of Accountancy, Queensland University of Technology, Gardens Point Campus, Brisbane, Qld 4001, Australia

Tel: 617 3138 2738, Email: m.hutchinson@qut.edu.au

**Faculty of Management, Multimedia University, Jalan Multimedia, 63100, Cyberjaya, Selangor Darul Ehsan, Malaysia

Tel : +603 8312, Email: mazlina.zain@mmu.edu.my

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1. Introduction

This paper explores the role of internal audit quality on firm performance in a sample of Malaysian firms. It extends prior research on the role of internal audits (e.g., Carcello, Hermanson, and Raghunandan, 2005; Jensen and Payne, 2003; Nagy and Cenker, 2002), including whether the role should be outsourced (e.g. Caplan and Kirschenheiter, 2000). The study is motivated by three factors. First, prior research suggests that internal audits can have a positive influence on corporate governance, including reporting quality and firm performance (e.g. Gramling, Maletta, Schneider and Church, 2004). Despite widespread acceptance of the benefits of internal auditing, there is relatively little documented empirical research on the role of internal auditing on firm performance. Further, it appears that the quality of the internal audit department is more important than the existence of an internal audit department. For example, Davidson, Goodwin-Stewart and Kent (2005) find no significant association between voluntary establishing an internal audit function and a reduction in the level of discretionary accruals. This finding suggests that merely establishing an internal audit does not control managers' incentives to manage earnings. Second, organizational theory and contracting theory suggests that only certain types of

organizations with particular firm characteristics could benefit from internal audit quality (IAQ).⁴ According to organizational contingency theory, linkages between specific management control systems and firm performance are likely to depend on contextual and environmental factors (Chenhall, 2003). Similarly, according to contracting theory the relationship between management control systems and firm performance depends on the costs of writing and enforcing contracts which may vary depending on firm characteristics (Watts and Zimmerman 1986). In this study we draw on contracting theory to investigate whether growth opportunities and audit committee independence affect the relationship between IAQ and firm performance. Third, while several studies have focused on internal auditing issues in developed countries, such as the USA and

⁴ SAS 65 (AICPA 1991) describes internal audit quality characteristics as comprising of competence (i.e. educational level, certification and prior experience), objectivity (e.g., reporting relationship, party responsible for appointment and termination of internal auditors), and quality of work performance (e.g., adequacy of audit programs). Likewise, the IIA standard 1210 on internal auditor's proficiency specifies that the internal auditors should possess the knowledge, skills and other competencies needed to perform in order to ensure audit effectiveness. In our study, we focus on internal auditors' competence, proxied by auditing experience and certification of the internal audit staff.

UK, there is little evidence from emerging markets such as Malaysia. Malaysian firms are of interest to this area of research because during this period it was mandatory for listed Malaysian companies to have an audit committee⁵ while forming an internal audit function was voluntary.⁶ Therefore, establishing an internal audit department is a relatively recent phenomenon in Malaysian companies.⁷ In addition, the necessity for stringent corporate governance in Malaysia is demonstrated by the alleged accounting fraud at Technology Resources Industries Berhad (see Fadzil, Haron and Jantan, 2005). In this paper we provide some insights on whether internal auditing as a monitoring/control mechanism is linked to firm performance in Malaysian firms.

The first objective of this paper is to determine if there is an association between internal audit quality and firm performance. The professional literature identifies both accounting qualifications and prior auditing experience of the internal audit staff as important ingredients for an effective internal audit function (e.g. the Research Committee of the Institute of Chartered Accountants of Scotland in McInnes, 1993). However, the relation between IAQ and firm performance is unlikely to be straightforward since both organizational theory and contracting theory suggests that only certain types of organizations with particular firm characteristics could benefit from IAQ.

⁵ In August 1994 the Bursa Malaysia Berhad (BMB) Listing Requirements made it mandatory for all public listed companies to have an audit committee. Further, to enhance the effectiveness of the audit committee, the BMB Listing Requirements amended its listing rules in 2001 requiring public listed companies to include the Audit Committee Report in their Annual Reports. The ten mandatory requirements for the Audit Committee Report are: (1) the audit committee should comprise of at least three members, (2) the majority of the audit committee should be composed of independent directors, (3) at least one of the audit committee members is financially literate, (4) the chairman of the audit committee must be an independent director, (5) no alternate director of the audit committee is appointed as a member, (6) there are written terms of reference, (7) the number of meetings should be noted, (8) the majority attending the meeting should be independent directors, (9) there should be a summary of audit committee activities and (10) a summary of internal audit activities should also be produced.

⁶ Although it is not mandatory to establish an internal audit function, an interesting issue is the revamped Bursa Malaysia Berhad Listing Requirements (Previously known as the Kuala Lumpur Stock Exchange) in particular Para 15.27 (b) states that a listed issuer must ensure that its board of directors includes in its annual report as a "statement about the state of internal control of the listed issuer as a group".

⁷ During the year 2000, the Finance Committee on Corporate Governance in Malaysia approved the Malaysian Code on Corporate Governance (MCCG). In contrast with the BMB Listing Requirements, the MCCG BB VII in Part 2 Best Practice Provision specifically recommends the board establish an internal audit function and maintain a sound system of internal control to safeguard shareholders' investments and the company's assets.

Since, prior evidence drawn from contracting theory suggests that growth (or investment) opportunities is likely to affect firm performance (see Smith and Watts, 1993; Baber et al. 1996) we also examine if growth opportunities affects the linkage between IAQ and firm performance. Contracting theory suggests that firms with high growth opportunities are associated with high information asymmetry and managers of these high growth firms are more difficult to monitor (Smith and Watts, 1992; Gaver and Gaver, 1993; Baber et al. 1996). Therefore, the role of IAQ is expected to be more beneficial for such firms. This study seeks to determine whether the link between IAQ and firm performance is dependent on the level of growth opportunities of the firm.

As audit committees are also part of the internal control system of a firm, the second objective of this paper is to determine whether audit committee independence has an impact on the association between IAQ and the performance of growth firms. Hermanson and Rittenberg (2003) suggest that the role of the auditor is one of preeminent monitoring and reporting to the board on the effectiveness of corporate governance. They foresee a possible conflict between the role of the internal audit function and the role of the audit committee and these tensions could affect organizational outcomes⁸. Together with Gramling et al (2004), they suggest that we need to understand how the internal audit function interacts with the audit committee, management, and the external auditors to achieve quality corporate governance. By examining the interaction between IAQ and audit committee independence on the performance of growth firms we shed some light on this question.

The data for this study of Malaysian firms is obtained from two sources. The first source is a survey of Malaysian firms listed on the Bursa Malaysia Berhad⁹ to obtain data on internal auditing. The second source is the annual reports of the firms responding to the survey. The data on firms' growth opportunities, audit committee and profitability is collected from the 2003 financial reports. Prior studies of Malaysian firms have examined the internal control practices of the internal audit function but not the implications on firm performance. Research of Malaysian firms demonstrate the importance of the internal audit by showing that management relies on internal audits to provide assurance on matters relating to internal control such as the provision of an independent review of efficient operations (Ernst and Young, 2005; Fadzil et al., 2005). Recent research by Mak and Kusnadi (2005) examines the impact of corporate governance mechanisms on the value of

⁸ The issue of the potential for tension between the internal audit department and audit committees is also raised by the Institute of Internal Auditors Research Foundation (2005).

⁹ The Kuala Lumpur Stock Exchange (KLSE) changed its name to the Bursa Malaysia Berhad (BMB) on April 20, 2004.

Singapore and Malaysia firms (as measured by Tobin's Q). The only significant association they find is a negative relationship between board size and firm value. They fail to find any significant association between either audit committee size or the proportion of independent directors on the audit committee and firm value. The evidence provided in this study suggests links between the performance of firms adopting a growth strategy and the quality of the internal audit function. Further, this study demonstrates that these associations are moderated by audit committee independence. Using observations from 60 Malaysian firms, this paper provides preliminary evidence that there is a positive association between IAQ and firm performance for firms with high growth opportunities, but not for firms with low growth opportunities. Further, we also show that, in the presence of an independent audit committee, the positive association between IAQ and performance for high growth firms disappears, suggesting a conflict effect between IAQ and audit committee. These preliminary findings suggest that focusing attention on the composition of the audit committee ignores the essential skills required for an effective AC. "Overemphasis on monitoring and control risks non-executive directors seeing themselves, and being seen, as an alien policing influence.... An overemphasis on strategy risks non-executive directors becoming too close to management... (Higgs Report 2003:27). An effective AC attains the appropriate balance between internal and independent directors; a great proportion of either can swing the balance in the wrong direction and cause conflict with the role of the IA.

This paper contributes to the literature in several ways. First, this study provides evidence from an emerging economy, Malaysia. Given the globalization of business, there is increasing interest in accounting and control issues in these countries. Second, this study demonstrates that research can successfully utilize both survey methodology and accounting data to study management control issues. Third, the results of this study are consistent with the notion that internal audits provide higher levels of control and monitoring that are associated with performance. However, this association is dependent on the firm's growth opportunities. Our results imply that it may not be economically efficient to establish an internal audit function in the absence of growth opportunities. Fourth, this study demonstrates the contingent nature of IAQ and how IAQ is related to other corporate governance controls, such as audit committee. The results of this study question whether firm performance is enhanced when internal audits are expected to serve as a resource to the audit committee and management, placing the internal auditor in a situation of possible conflict. Finally, this paper contributes to the literature by integrating management control and corporate governance theory in terms of the role of IAQ and audit committees and shows that such integration provides a deeper

understanding of how and why these variables interact to affect firm performance. This evidence is not available in the extant literature.

2. Background and hypothesis development

An increasing number of earnings restatements along with allegations of financial statement fraud committed by high profile companies have eroded public confidence in corporate governance, the financial reporting process, and audit functions (Rezaee, et al., 2003). Subsequently, the firm's internal control environment is under scrutiny. As part of the overall internal control environment, the internal auditor and the audit committee have a responsibility to provide oversight on the reliability of financial reporting. The Institute of Internal Auditors (2000) suggests that the internal audit function should bring a systematic approach to evaluating and improving the effectiveness of risk management, control and governance processes. This is likely to lead to increased responsibilities placed on the internal audit function and audit committee of companies that previously did not have or outsourced the internal audit function. Consequently, the internal audit function has greater responsibilities for supporting management and the audit committee.

2.1 Internal auditing and firm performance

One of the roles of the internal auditor is to provide management with an independent and objective assurance that the organizations internal control system is effective, adequate and reliable (IIA, 2000). In addition, the IA provides consulting on operational skills that focus on risks, evaluate the efficiency of operations and stimulate organizational actions (Hermanson and Rittenberg 2003). In response to regulatory, environmental and technological change, IA is required to do much more than compliance work. The IA must have a thorough knowledge of how their work contributes value and links to organizational strategies and achievement (Hass, Abdolmohammadi, and Burnaby, 2006). Therefore, internal auditing is designed to add value and improve the organizations operations (Carcello et al., 2005). Research on auditors' assessment of the criteria of IA competence includes IA training programs, with an emphasis on professional certifications (Brown, 1983), and IA experience (Messier and Schneider, 1988).

Prior studies also suggest that the auditor should have professional qualification and prior experience if they are to lead a good quality audit (e.g. Brody et al., 1998). Boo and Koh's (2004) study indicates that audit team quality and attributes relate to their ability to suggest improvement to internal control systems; operational efficiency; risk management; and financial matters. Prior experience is important for internal auditors as many oversight judgments are subjective

and managerial action may have pervading effects. Therefore, in the absence of objective criteria, internal audit staff not possessing prior experience in auditing (or less experience), may not understand the wide range of existing and potential problems nor possess problem-solving skills (DeZoort, 1998). Consequently, an IA with greater training and experience is more able to provide assurance of the effectiveness and efficiency of organisational controls in aligning with organizational strategies. Research by Fadzil et al (2005) supports this notion by finding that IAQ¹⁰ significantly influences the quality of monitoring the internal control system. Mat Zain et al (2006) find that internal auditors contribute more to financial statement audits when they have a greater proportion of IA staff with prior experience in accounting and auditing. Research also finds that effective internal audits are more likely to detect and prevent fraud (Beasley, Carcello, Hermanson, and Lapides, 2000; KPMG Peat Marwick, 1999).

The redefinition of internal control as risk management emphasizes the links to strategy formulation which is supported by the internal controls of the organization. All risks experienced by organizations have potential financial implications and so too does the risk management responsibility of the IA. Further, the internal audit helps to maintain cost-efficient contracting between owners and managers. Thus, the internal audit has the potential to augment the external audit function and reduce the overall monitoring costs. For instance, research by Felix et al (2001) find that the contribution of IA to financial statement results in cost saving related to audit fees paid by the firm to their external auditors. Taken together, these preceding factors suggest that greater IAQ is associated with greater firm performance. However, it is likely that the relation between IAQ and firm performance varies with organizational characteristics. Despite increasing attention on IAQ, little is known about factors that influence the association between IAQ and firm performance. Why would higher IAQ be associated with better firm performance for some firms and not for others? There are a myriad of factors that could influence the association between IAQ and firm performance. Given the role of the IA as monitoring and managing risk, we examine whether the association between IAQ and firm performance is dependent on uncertain investment opportunities and the independence of the audit committee.

2.2 Growth opportunities

Firms need to establish internal controls that manage risk effectively. Risk has been defined as the possibility of loss as a result of a combination of uncertainty and exposure flowing from an investment decision or a commitment (Boritz, 1990). The

¹⁰ IAQ also refers to the management of the internal audit department, professional proficiency, objectivity and review.

agency costs associated with high growth opportunities means that high growth firms have high levels of inherent risk¹¹. Subsequently, high growth firms are more likely to benefit from higher IAQ, which means better financial performance. The reasons for this proposition follow the research by Gaver and Gaver (1993) and Smith and Watts, (1992). Low growth firms are valued independently of the firm's future investment opportunities while high growth firms are valued based on the firm's future discretionary investment decisions. As low growth firms are pre-committed to a certain course of activity, shareholder/manager conflict is low which minimizes agency costs. In contrast, high growth firms incur greater agency costs because managers' actions are less discernible as the value of growth opportunities depends on further discretionary expenditures by managers¹². The subsequent information asymmetry means that growth firms adopt particular strategies to monitor managers, including creating internal audit departments. Carcello et al. (2005) suggest that greater information asymmetry increases the need for greater investment in IA to bond or monitor¹³ agents. Further, high growth firms are more likely to encounter problems with internal control requiring greater monitoring and assistance from internal auditors (Carcello et al., 2005; Maletta and Kida, 1993). However, it is not simply the existence of IA that is important, as demonstrated by Davidson et al. (2005), but the quality and effectiveness of the internal audit department that is important for firms with uncertain investment opportunities. The IA must have the training and experience that links the evaluation of the risks associated with uncertain growth opportunities to the firm's strategies that achieve positive outcomes. In the high-risk conditions of high growth opportunities, internal audit quality is a primary factor that influences internal audit contribution to firm performance. Consequently, we expect a positive association between IAQ and firm performance for high growth firms. The preceding discussion leads to the first hypothesis:

H1: A combination of high quality internal audit (X_1) and high levels of growth (X_2) will have a positive impact on firm performance (Y).

2.3 Audit committee

Audit committee oversight includes financial reporting, internal controls to assess risk and auditor activity

¹¹ Inherent risk relates to the type of business and environment in which the firm operates.

¹² Discretionary expenditures include capacity expansion projects, new product lines, maintenance and replacement of existing assets.

¹³ Internal auditing is a bonding cost incurred by agents to signal to the principal they are acting responsibly, while monitoring costs are incurred by the principal to protect their economic interest (Adams, 1994)

(DeZoort, Hermanson, Archambeault and Reed, 2002).¹⁴ The audit committee, as a governance mechanism, reduces information asymmetry between stakeholders and managers and therefore mitigates agency problems. Research finds that firms without audit committees are more likely to have fraudulent financial reporting (Dechow, Sloan and Sweeney, 1996) and earnings overstatement (DeFond and Jiamnalvo 1991). To fulfill the oversight role, the audit committee must be independent from management, thus giving rise to the recent governance recommendations and regulations demanding an independent audit committee.

The Sarbanes-Oxley Act (2002) mandates that the audit committees of listed companies consist entirely of independent directors and the recent amendments to the Bursa Malaysia corporate governance framework, which was introduced in 2008, requires all members of the audit committee to be non-executive directors.

Research also provides evidence of the importance of audit committee independence (ACI). Krishnan (2005) find that independent audit committees and audit committees with financial expertise are significantly less likely to be associated with the incidence of internal control problems¹⁵. Likewise, Abbott et al. (2004) find that audit committees consisting of all independent members and with at least one member with accounting or related expertise are negatively associated with financial restatements. Beasley et al. (2000) find firms that commit fraud are likely to have less independent audit committees.¹⁶

¹⁴ In Malaysia the audit committee is required to prepare a summary of the principal internal audit activities and functions. These activities include audit of financial management and human resource operations and security controls. The reports should also mention that the audit committee has approved the internal audit program at the beginning of the year and the chief internal auditor has submitted regular reports on audit work and activities prior to the committee meeting. In addition, the audit committee must be satisfied that the internal auditors have worked closely with external auditors to resolve issues raised by the external auditors in relation to the control issues in the organization (Haron, Jantan and Pheng, 2005, p. 193).

¹⁵ They investigated two levels of seriousness in internal control problems: reportable conditions and material weaknesses. The data on internal controls is acquired from the reports from companies changing auditors. These companies are required to disclose any internal control problems that are pointed out by the predecessor auditors

¹⁶ Based on reputational capital enhancement theory, past studies argue that independent audit committees are more likely to demand a higher quality audit in order to protect their reputation as experts in decision making (Abbott & Parker 2000; Carcello & Neal, 2000). Further Abbott & Parker (2000, p.56) argue that while an "audit committee service may increase directors' reputation as a monitor, it also exacerbates the potential reputational damage should the misstatement occur while the director serves on the audit committee". In addition, Baysinger and Butler (1985) find that independent audit committees are more willing to

One of the main objectives of establishing an audit committee is to strengthen the board's ability to monitor the performance of managers. However, studies testing the association between ACI and firm performance are inconclusive. Erickson et al. (2005) find a positive relationship between ACI and firm performance while Klein (1998) and Hsu (2008) find no significant association. Mak and Kusnadi (2005) fail to find any significant relationship between either audit committee size or the proportion of independent directors on the AC and firm value. Failing to account for environmental uncertainty faced by the firms, such as uncertain investment opportunities, and interrelations between governance controls such as IAQ and ACI may have led to the conflicting results.

An optimal internal control system is associated with the environment and the context in which the system operates. It is posited in this paper that a positive association between IAQ and firm performance is contingent on the level of risk faced by the firm, that is, high, but uncertain, growth opportunities¹⁷. Further, Klein (2002) finds that audit committee independence declines as growth opportunities increase. This result is consistent with her expectation that managers demand for internal directors with expertise increases with the complexities and uncertainties of growth opportunities. Klein (2002, p.436) also suggests that firms tailor audit committee composition to suit their economic environment. Subsequently, the level of growth opportunities of the firm has the potential to influence the association between the IA and AC and subsequently, firm performance. Previous research has found that high growth firms prefer an insider dominated board to integrate the practical activities of the firm around its strategies (Bathala and Rao, 1995; Hutchinson, 2001). As growth opportunities are firm specific, subject to managerial decisions, inside directors have an essential role to play in providing valuable information to the AC about the firm's activities. Donaldson and Davis (1994) suggest that inside directors make superior decisions, having access to corporate information and the ability to take a long-term view.

Codes, regulations, and various best practice guides stress the importance of the internal audits' relation with other parties responsible for corporate governance. However, research on the relations between internal audits and the audit committee is limited, focusing only on the association between audit committee characteristics and the internal audit (e.g. DeZoort, Friedberg, and Reisch, 2000). Internal audits have a dual role to play in the corporate governance of the organization, which places the internal auditor in a position of possible conflict.

disagree with management and are more likely to insist on high quality audit.

¹⁷ Of course there are other risks that may be affect the association between IAQ and firm performance, such as audit risk, operating risk, financial risk, etc.

Hermanson and Rittenberg (2003, p. 34) suggest that there are

“significant differences in functions and skill sets required when trying to serve audit committee needs, as opposed to meeting the needs of strategic and operational management. Management wants the internal auditor to provide both assurance and consulting based on broad operational skills that address risks, evaluate the efficiency of operations, and stimulate organizational action. On the other hand, the audit committee is more interested in assurance regarding controls.”

Prior research demonstrates the complex and contingent nature of the association between internal audits and the audit committee. The internal auditor in many firms reports directly to the CEO and the head of the audit committee rather than management because the audit committee’s role is to monitor and report on the effectiveness of corporate governance (Krell, 2003). However, Nagy and Cenker (2002), find, when interviewing internal audit directors, management primarily determines the role of the internal auditor, thus placing the IA in a position of potential conflict. Raghunandan, Read and Rama (2001) find that the audit committee independence¹⁸ and expertise¹⁹ is associated with their ability to influence internal auditors via access to the chief internal auditor and their ability to review internal audit activities. Hence, an independent audit committee places greater demands on internal audits. However, good corporate governance should be promoted without stifling entrepreneurial drive or impairing competitiveness. The business advisory group’s to the original OECD principles states:

“Entrepreneurs, investors and corporations need the flexibility to craft governance arrangements that are responsive to unique business contexts.....” (OECD, 1998, p.34).

Subsequently, audit committee independence (ACI) may inhibit the performance of growth firms as the internal auditor focuses on the compliance requirements of the audit committee rather than assisting management with assessing the potentially profitable risks of uncertain investment opportunities. Thus, ACI affects the strength of the relationship between IAQ and the performance of high growth firms. No research is found that addresses these associations. This leads to the following hypothesis:

H2: A combination of both high quality internal audit (X_1) and audit committee independence (X_3) have a negative impact on firm performance (Y) for high growth firms (X_2).

¹⁸ The proportion of independent directors on the audit committee.

¹⁹ The proportion of committee members with an accounting or finance background.

3. Data

Data on internal audit quality is collected through a mail questionnaire survey of public listed companies in Malaysia during 2003. Five-hundred and four questionnaires were sent to the head of the internal departments of public companies listed on the Bursa Malaysia Berhad. A total of 101 (20.03 percent) responses were received of which 60 (12 percent) were useable responses. Of the 41 non-useable responses, 30 were eliminated due to the companies having fully outsourced and co-sourced their internal audit functions, thus information relating to the quality of internal audits was unavailable. The remaining responses were excluded due to incomplete information. While the original questionnaire contained several questions, the two questions of interest in this paper deal with the auditing experience and accounting qualification of the internal audit staff. The relevant questions of the survey instrument on the internal audit function are reported in the appendix. Other information on firm performance, audit committees and growth opportunities is obtained from the annual reports of the respective firms (year-ending 2003) responding to the survey.

3.1 Dependent variable

The internal audit function includes risk management and better internal controls which should manifest in better firm performance. The dependant variable, firm performance is measured as the firm’s return on assets (ROA). We use this accounting based measure because internal audits and the audit committee are concerned with, among other things, providing assurance regarding the integrity of financial information, that is, that the firm’s performance is accurately reported. Hence, we would expect to see a positive association between IAQ and firm performance.

3.2 Independent variables

The measure of internal audit quality is separated into two variables to capture the auditing experience (PSAPA) and accounting qualifications (PSAQ) of the internal audit staff. PSAPA is the proportion of internal audit staff with prior work experience in auditing to the size of the internal audit function while PSAQ is the proportion of internal audit staff with an accounting qualification to the size of the internal audit function. These measures also control for the size of the internal audit team since they are proportions of the total number of staff in the internal audit department. Prior research and legislation suggests that audit committee effectiveness is dependent, in part, on the extent to which the committee is independent and suggest that the audit committee should consist of a majority of non-executive or independent directors (e.g.

Raghunandan et al 2001)²⁰. Our measure of audit committee independence (ACI) is an indicator variable of audit committee effectiveness (the proportion of independent members to the total number of members in the audit committee). The measure of growth adopted in this study, the market-to-book value of equity, is used extensively in prior research (e.g. Smith and Watts, 1992) and is obtained from the annual reports of the firms completing the usable responses to the questionnaire.

Following Govindarajan and Fisher (1990) and Gul and Chia (1994) we adopt the multiplicative model for testing our hypotheses. The model requires transformation of the independent variables into a point-scale for the analyses. The three point-scales for PSAPA and PSAQ are determined following assessment of the distribution of the variables. Table 1 reports the distribution of the proportions for PSAPA and PSAQ. The scores for each of the variables are converted to a three-point scale. PSAPA is a three-point scale of the proportion of internal audit staff with auditing experience: 1 if the proportion is ≤ 0.5 ; 2 if the proportion is > 0.5 and < 1 ; and, 3 if the proportion = 1. PSAQ is a three-point scale of the proportion of internal audit staff with an accounting qualification: 1 if the proportion is ≤ 0.5 ; 2 if the proportion is > 0.5 and < 1 ; and, 3 if the proportion = 1. The measure of audit committee independence (ACI), the proportion of independent members to the total number of members in the audit committee is: 0 if the proportion is < 0.7 ; 1 if the proportion is ≥ 0.7 and ≤ 1 . The cut-off point is based on the distribution of the proportions.

Insert Table 1 here

3.3 Control variables

Agency theory suggests that increased leverage controls agency costs by reducing the amount of cash available to managers for discretionary investments. Hence, managers are constrained in making sub-optimal decisions from the debt-holders perspective. Leverage and liquidity also impact on the firm's ability to generate profits. We use two measures of debt (total debt and long-term debt) which are included as control variables as they represent an external corporate governance control which is likely to impact on firm performance. Leverage is measured as: Leverage = current and non-current borrowings divided by total equity. This ratio indicates how firms choose to finance operations. The lower the ratio, the greater the protection for lenders, who rank before shareholders. A measure of long term debt is included and is measured as NCL = net current liabilities divided by total assets. The liquidity ratios, inventory ratio and accounts receivable ratio, are included in the model as these

variables are likely to impact on firm risk. These variables are measured as: INV/TA – inventory divided by total assets; and, AR/TA – account receivable divided by total assets.

4. Method

4.1 Multiplicative model

The multiplicative model (Althaus, 1971; Govindarajan and Fisher, 1990), used extensively in contingency-type research, is adopted for testing the interactive effects of internal auditor quality (IAQ), growth (market-to-book value of equity) and audit committee independence (ACI) on firm performance (ROA) in hypothesis one and hypothesis two. This involves using the following multiple regression equations:

$$Y = a_0 + a_1 X_1 + a_2 X_2 + a_3 X_1 X_2 + \varepsilon \quad (1)$$

$$Y = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_1 X_2 + b_5 X_1 X_3 + b_6 X_2 X_3 + b_7 X_1 X_2 X_3 + \varepsilon \quad (2)$$

Where Y = Firm performance (ROA); X_1 = Internal auditor quality proxies using a three point scale for the proportion of internal audit staff with prior work experience in auditing to the size of the internal audit function (PSAPA) and proportion of internal audit staff with accounting qualification to the size of the internal audit function (PSAQ); X_2 = Growth is measured as the market-to-book value of equity; X_3 = Audit committee independence using an indicator variable for the proportion of independent members to the size of the audit committee); $X_1 X_2$, $X_1 X_3$, $X_2 X_3$, $X_1 X_2 X_3$ = Interaction of X_1 , X_2 and X_3 .

The regression models test whether the interactive effects of the independent variables are important in explaining variations in firm performance. If a_3 and b_7 are significant, this is equivalent to saying that the corresponding incremental R^2 is statistically significant at the same probability level (Southwood, 1978, p.1168; Jaccard, Turrisi and Wan., 1990, p.22; Cohen and Cohen, 1983; Hartmann and Moers, 1999). This means that the introduction of the term $X_1 X_2$ in equation (1) and $X_1 X_2 X_3$ in equation (2) add significantly to the variance explained. However, this provides no information on whether the posited relationship is monotonic²¹. In order to test for a monotonic relationship, the partial derivatives from the above regression equations are examined (Southwood, 1978; Schoonhoven, 1981). For example, in testing whether the relationship between IAQ and ROA depend on the level of a firm's growth opportunities (MBE) (hypothesis one), we take the partial derivative of equation (1) with respect to X_1 , as below:

²⁰ Bursa Malaysia recently prohibited executive directors from being part of the audit committee.

²¹ For a discussion on monotonic and non-monotonic effects, see Schoonhoven (1981).

$$\delta Y / \delta X_1 = a_1 + a_3 X_2 \quad (3)$$

The partial derivative of the impact of internal auditor quality (X_1) on firm performance (Y) in equation (3) depends on the level of growth (X_2). If the value of $\delta Y / \delta X_1$ in equation (3) is always positive or always negative over the entire observable range of X_2 , the relationship between Y and X_1 would be regarded as monotonic; otherwise, it would be regarded as non-monotonic. Similarly, the partial derivative of equation (2) with respect to X_1 is examined, as below:

$$\delta Y / \delta X_1 = b_1 + b_4 X_2 + b_5 X_3 + b_7 X_2 X_3 \quad (4)$$

Equation (4) illustrates that the relationship between Y and X_1 depends on both the level of growth and audit committee independence. If audit committee independence (X_3) is a constant, equation (4) can be re-arranged as:

$$\delta Y / \delta X_1 = (b_1 + b_5 X_3) + (b_4 + b_7 X_3) X_2 \quad (5)$$

In this way, the effect of growth on the relationship between internal auditor quality and firm performance can be examined conditional on the independence of the audit committee.

5. Results

The descriptive statistics are presented in Table 2. The average ROA is 4.7 percent while the average market-to-book ratio of equity (growth) is 1.51. Leverage is 41 percent, the long term debt ratio is 14.5 percent and the liquidity ratios average between 13 and 14 percent.

Insert Table 2 here

The correlations between the dependent variable ROA and the independent variables are shown in Table 3. The only variable that is positively and significantly correlated with ROA is the measure of growth opportunities. The long-term debt ratio is negatively and significantly correlated with ROA.

Insert Table 3 here

Table 4 and 5 provide the results of the multiple regression models performed to test the various hypotheses²². As reported in Table 4, the interaction terms between internal auditor quality and growth are

²² The statistical analyses and interpretations of the results followed the approach adopted by Govindarajan and Fisher (1990) and Gul and Chia (1994).

positively and significantly associated with firm performance (ROA) for the two proxies of internal auditor quality ($p < 0.05$ for PSAPA and PSAQ)²³. The coefficients in Equation A and B suggest that a positive association between IAQ (in terms of accounting backgrounds or prior experience of the staff) and firm performance is contingent on the level of growth opportunities.

Insert Table 4 here

The partial derivatives of Equation A and B in Table 4 over different internal auditor quality proxies give the following results:

$$\text{Equation A: } \delta Y / \delta X_1 = -0.0347 + 0.0380X_2 \quad (6.1)$$

$$\text{Equation B: } \delta Y / \delta X_1 = -0.0181 + 0.0298X_2 \quad (6.2)$$

Equation A and B will be zero when X_2 (growth) has a value of 0.9132 and 0.4548 respectively, which are known as the inflection points (i.e. where the change in the direction of the relations occur). In other words, the association between IAQ and performance (ROA) are positive (negative) when growth is above (below) the inflection points, as shown in Figure 1.

Insert Figure 1 here

These inflection points are within the range of observable values for X_2 (1 - 5, see Table 1) for the above equations. Therefore, the above results show that for firms with a higher level of growth, internal auditor quality is positively associated with better firm performance in terms of ROA, and the reverse is true for firms with a lower level of growth, consistent with hypothesis one.

Table 5 reports the results of testing hypothesis two. Similar to the above analysis, it is found that the three-way interaction terms are negative and significant for the two proxies for internal auditor quality ($p < 0.05$ for PSAPA and $p < 0.01$ for PSAQ)²⁴. To examine the effect of audit committee independence on the relation between growth, internal auditor quality and firm performance, the partial derivatives of Equation A and B in Table 5 over

²³ An equivalent test, as suggested in Cohen and Cohen (1983), is to test the statistical significance of the incremental R^2 with the addition of the interaction term. Unreported results show that the increases in R^2 are statistically significant with the interaction term included in the regression (For example, R^2 increases from 19 percent to 29 percent in the case of PSAPA).

²⁴ Unreported results also show that the addition of the ACI variable significantly increases the explanatory power of the models.

internal auditor quality are analyzed as follows:

$$\text{Equation A: } \delta Y / \delta X_1 = -0.0592 + 0.0527 X_2 + 0.0733 X_3 - 0.0626 X_2 X_3 \quad (7.1)$$

$$\text{Equation B: } \delta Y / \delta X_1 = -0.0792 + 0.0603 X_2 + 0.1446 X_3 - 0.0970 X_2 X_3 \quad (7.2)$$

Equations A and B suggest that the effect of internal auditor quality on firm performance is a function of both the level of growth and audit committee independence²⁵. Govindarajan and Fisher (1990: 274) suggest that the values and significance of the unstandardised coefficients will change when the origin points of the independent variables change, but a change in the origin points of the independent variables will have no impact on the value or significance of the unstandardised coefficients of the three-way interaction term. Therefore, apart from the three-way interaction term (b_7) the coefficients for Equation 2 in Table 5 are not interpretable since they can be altered by shifting the origin points of X_1 , X_2 , and X_3 . Consequently, the purpose of Equation 2 is to provide information on the interaction of X_1 , X_2 , and X_3 on Y , not on the main effects. In addition, multicollinearity is not an issue with Equation 2 as multicollinearity is eliminated by manipulating the origin points of the independent variables and the R^2 to zero which does not affect the significance of b_7 (Govindarajan and Fisher 1990).

Inset Table 5 here

In order to analyze the relationship under low audit committee independence, ACI (X_3) is set to 0. The above equations are then expressed as follows:

$$\delta Y / \delta X_1 = -0.0592 + 0.0527 X_2 \quad (8.1)$$

$$\delta Y / \delta X_1 = -0.0792 + 0.0603 X_2 \quad (8.2)$$

The inflection points are 1.123 and 1.313 respectively. On the other hand, the equations are expressed as follows if ACI is set to 1:

$$\delta Y / \delta X_1 = 0.0141 - 0.0099 X_2 \quad (9.1)$$

$$\delta Y / \delta X_1 = 0.0654 - 0.0367 X_2 \quad (9.2)$$

The inflection points will be 1.424 and 1.782 respectively. These points are illustrated in Figure 2.

Inset Figure 2 here

²⁵ The subsequent interpretation followed the approach adopted by Govindarajan and Fisher (1990).

It is shown that for firms with fewer independent directors on the audit committee, the equations will be positive when X_2 is high (above the inflection points), meaning that there is a positive effect of internal auditor quality on firm performance for high growth firms with more executive directors on the audit committee. Interestingly, for firms with more non-executive directors on the audit committee, the equations are negative when X_2 is above the inflection points, suggesting that the effect of internal auditor quality on firm performance is negative for high growth firms with independent audit committees. This provides evidence of conflict between internal audit quality and audit committee independence in terms of their effects on firm performance, consistent with hypothesis two²⁶.

5.1 Robustness tests

We conducted three additional tests to assess the robustness of our results. First, we included industry dummies in all the regressions to control for the confounding effects of industry differences. Second, we included size (log of total assets) in all the regressions with and without the industry controls. Regression analyses with controls (dummy variables) for the 8 industries with and without the size variable did not change the qualitative nature of the results. Finally, we also used return on equity (ROE) as another measure of firm performance and the qualitative nature of the results, in general, remain unchanged.

6. Conclusion

In the current legislative environment, many organizations are considering implementing an internal audit function, or are taking actions to improve IAQ, such as appointing more personnel with auditing and accounting qualifications in the internal audit department. However, the extant literature provides little guidance as to which governance characteristics should be improved if an organization desires to increase IAQ and, subsequently, its performance. Monitoring internal control is the result of actions by, and interactions between, management, the internal auditor, the external auditor and the audit committee (Krishnan, 2005). This paper provides an insight, albeit preliminary, into the role of internal audits and the impact on firm performance and explores the inter-relationships between firm and governance factors. Primarily, our results show that effective governance, in terms of internal audits and the audit committee is contingent on the risks associated with the firm's environment. In this paper

²⁶ Other than analyses on partial derivatives, Hartmann and Moers (1999) suggests that an alternative test of non-monotonicity is by means of sub-group linear regressions. This analysis has not been done in view of the small sample size of the study ($N = 60$).

the risks are those associated with the firm's investment opportunities.

The findings are subject to a number of limitations. Cross-sectional studies such as this can establish associations, but not causality. Given the paucity of research into the association between internal audits and the audit committee and contingent factors affecting corporate governance it is difficult to identify pervasive themes. There are many different types of internal control systems, we have only considered two. Future research could also consider the role of the board in the interplay between IAQ and ACI. Another factor that may affect these results is the method of data collection, a mail survey, which is subject to response bias. The results are obtained from a small subset of firms that responded to the internal audit survey questionnaire. The results could have been different if other firms that did not respond to the survey are included in the sample. This research project provides preliminary results and a more comprehensive, national industry association-backed study which increases the sample number and number of participating firms in Malaysia would add to the validity of the results. Finally, our data is from Malaysia and the findings may not be germane to other countries.

The main thrust of our result support the notion that firms need to establish an internal control system to manage risk effectively. An audit committee with a majority of non-executive directors may constrain the efficiency of internal audits which impacts firm performance. That is, not all firms benefit from ACI, for some firms it is imperative that the AC has firm-specific knowledge about operations when assessing risks. This understanding can only be acquired from insider knowledge. Thus, it is more important for the IA to align with management rather than the AC when operating in an uncertain environment such as high investment opportunities. What is important is that there should be a fit between the organisations' operating environment and the monitoring and control functions of the IA and AC. Therefore we encourage future research that considers alternate models of factors that may influence IAQ and enhance corporate governance. Notwithstanding these limitations, the results of this study have implications for policy setters and regulators. The negative impact of ACI on the association between IAQ and performance for growth firms suggests that it is inappropriate to mandate specific AC composition; attention should be focused on firm-specific requirements. Studies of this nature are useful to organizations trying to improve the quality of their internal audit, as evaluated from the perspective of the firm's growth opportunities and their audit committee. By maintaining the right mix of governance mechanisms, overall governance and hence performance may be improved.

Finally, the results of this study question the recently released key amendments to the Bursa Malaysia corporate governance framework in 2008

which require all members of the audit committee to be non-executive directors (Mondovisione News, 2008). The key amendments of the Listing Requirements (LR) and MESDAQ Market Listing Requirements (MMLR) are aimed at raising the standards of corporate governance for companies listed on Main Board, Second Board and MESDAQ Market and increasing investor confidence²⁷. However, the results from this study demonstrate that an insider dominated audit committee may cause conflict for the internal auditor which, in turn, has an adverse effect on firm performance. This suggests that the important thing is not the independence of the audit committee, but rather having the right mix of members with the necessary skills to evaluate the risks faced by the firm. The key amendments to the Bursa Malaysia corporate governance framework may need to be adjusted, for example, to an audit committee composition which reflects a simple majority of non-executive directors (with a non-executive chair). This will allow for representation of inside directors who possess the firm-specific knowledge necessary to properly assess risk especially in high-growth opportunity firms. Consequently, this will allow for the balance necessary between the "agent" and "principal" representation. The trend towards legislating for non-executive/independent representation (where there was often little or none on boards) is not slowing. However, this does not mean that the public policy pendulum cannot be adjusted back somewhat.

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²⁷ Bursa Malaysia Berhad announced key amendments to the corporate governance framework under Listing requirements and MESDAQ Market Listings Requirements on 28 January 2008. The key amendments include:- requiring all audit committee members to be non-executive directors; mandating the internal audit function by listed issuers and requiring the internal audit function of listed issuers to report directly to the audit committee; expanding the functions of the audit committee to include the review of the adequacy of the competency of the internal audit function; setting out the rights of audit committee to convene meetings with external auditors, internal auditors or both, excluding the attendance of other directors and employees of the listed issuer. The amendments will take effect from 28 January 2008.

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Appendix

Extract of Internal Audit Survey 2003 relating to in-house internal audit arrangements.

Question 5. How many staff are there in your in-house audit section/unit?

Question 6. How many of the staff in your internal audit department have

- i) an accounting qualification? _____
- ii) prior work experience in auditing? _____

Table 1. Distribution of the variables

scale point		PSAPA		PSAQ	
		N		N	
1	proportion<=0.1	1		1	
	0.1<proportion<=0.2	2		1	
	0.2<proportion<=0.3	2		0	
	0.3<proportion<=0.4	2		5	
	0.4<proportion<=0.5	12	19	10	17
2	0.5<proportion<=0.6	2		3	
	0.6<proportion<=0.7	4		3	
	0.7<proportion<=0.8	3		3	
	0.8<proportion<=0.9	1	10	2	11
3	0.9<proportion<=1.0	31	31	32	32
			60		60

scale point		ACI	N
0	0.4<=proportion<0.5	1	
	0.5<=proportion<0.6	2	
	0.6<=proportion<0.7	30	33
1	0.7<=proportion<0.8	18	
	0.8<=proportion<0.9	2	
	0.9<=proportion<1.0	7	27
			60

Table 2. Descriptive Statistics (N = 60)

Variables	Mean	Median	Maximum	Minimum
ROA	0.047	0.057	0.253	-0.265
PSAPA	2.200	3.000	3.000	1.000
PSAQ	2.250	3.000	3.000	1.000
ACE	0.450	0.000	1.000	0.000
Growth	1.151	0.803	4.262	0.229
Leverage	0.407	0.378	1.000	0.006
INV/TA	0.133	0.069	0.990	0.000
AR/TA	0.141	0.104	0.510	0.000
NCL	0.145	0.075	0.790	0.000

Notes: The variables are defined as follows: ROA - return on assets; PSAPA - three-point scale of the proportion of internal audit staff who have prior work experience in auditing to the size of the internal audit function, 1 if $0.5 \leq \text{proportion}$, 2 if $0.5 < \text{proportion} < 1$, 3 if $\text{proportion} = 1$; PSAQ - three-point scale of the proportion of internal audit staff who have accounting qualification to the size of the internal audit function, 1 if $0.5 \leq \text{proportion}$, 2 if $0.5 < \text{proportion} < 1$, 3 if $\text{proportion} = 1$; ACI - indicator variable of audit committee effectiveness (the proportion of independent members to the total number of members in the audit committee), 0 if $\text{proportion} < 0.7$, 1 if $0.7 \leq \text{proportion} \leq 1$; Growth - market-to-book value of equity; Leverage - current and non-current liabilities divided by total equity; INV/TA - inventory divided by total assets; AR/TA - account receivable divided by total assets; NCL - net current liabilities divided by total assets.

Table 3. Spearman Correlation Matrix

Variable	ROA	PSAPA	PSAQ	ACI	Growth	Leverage	INV/TA	AR/TA	NCL
ROA	1	0.064	0.083	0.003	0.569***	-0.280**	-0.020	0.188	-0.362***
PSAPA		1	0.738***	-0.055	-0.213	0.234*	-0.268**	-0.113	0.250*
PSAQ			1	-0.104	-0.079	-0.176	0.266**	0.233*	-0.181
ACI				1	-0.067	-0.105	0.197	0.191	-0.125
Growth					1	0.099	-0.271**	-0.014	0.062
Leverage						1	-0.027	0.200	0.538***
INV/TA							1	0.437***	-0.258**
AR/TA								1	-0.195
NCL									1

Notes: *, **, *** two-tailed statistical significance at the 0.10, 0.05 and 0.01 level respectively. The variables are defined as follows: ROA - return on assets; PSAPA - three-point scale of the proportion of internal audit staff who have prior work experience in auditing to the size of the internal audit function, 1 if $1 \geq \text{proportion} \geq 0.5$, 2 if $0.5 < \text{proportion} < 1$, 3 if $\text{proportion} = 1$; PSAQ - three-point scale of the proportion of internal audit staff who have accounting qualification to the size of the internal audit function, 1 if $1 \geq \text{proportion} \geq 0.5$, 2 if $0.5 < \text{proportion} < 1$, 3 if $\text{proportion} = 1$; ACI - indicator variable of audit committee effectiveness (the proportion of independent members to the total number of members in the audit committee), 0 if $\text{proportion} < 0.7$, 1 if $0.7 \leq \text{proportion} \leq 1$; Growth - market-to-book value of equity; Leverage - current and non-current liabilities divided by total equity; INV/TA - inventory divided by total assets; AR/TA - account receivable divided by total assets; NCL - net current liabilities divided by total assets.

Table 4. Regression of Firm Performance on Internal Auditor Quality and Growth

VAR	Equation A	Equation B
	<u>IAQ = PSAPA</u>	<u>IAQ = PSAQ</u>
	Coefficients	Coefficients
Intercept	0.102**	0.051
IAQ (X_1)	-0.030*	-0.007
Growth (X_2)	-0.022	0.000
IAQ*Growth ($X_1 X_2$)	0.028**	0.018*
Leverage	-0.047	-0.039
INV/TA	-0.028	-0.052
AR/TA	0.087**	0.078**
NCL	-0.133**	-0.154**
Adj.R ²	0.291	0.276
F. Value	4.455***	4.206***

Notes: *, **, *** one-tailed statistical significance of white-corrected *t* values at the 0.10, 0.05 and 0.01 level respectively. The variables are defined as follows: ROA - return on assets; PSAPA - three-point scale of the proportion of internal audit staff who have prior work experience in auditing to the size of the internal audit function, 1 if $1 \geq \text{proportion} \geq 0.5$, 2 if $0.5 < \text{proportion} < 1$, 3 if $\text{proportion} = 1$; PSAQ - three-point scale of the proportion of internal audit staff who have accounting qualification to the size of the internal audit function, 1 if $1 \geq \text{proportion} \geq 0.5$, 2 if $0.5 < \text{proportion} < 1$, 3 if $\text{proportion} = 1$; Growth - market-to-book value of equity; Leverage - current and non-current liabilities divided by total equity; INV/TA - inventory divided by total assets; AR/TA - account receivable divided by total assets; NCL - net current liabilities divided by total assets.

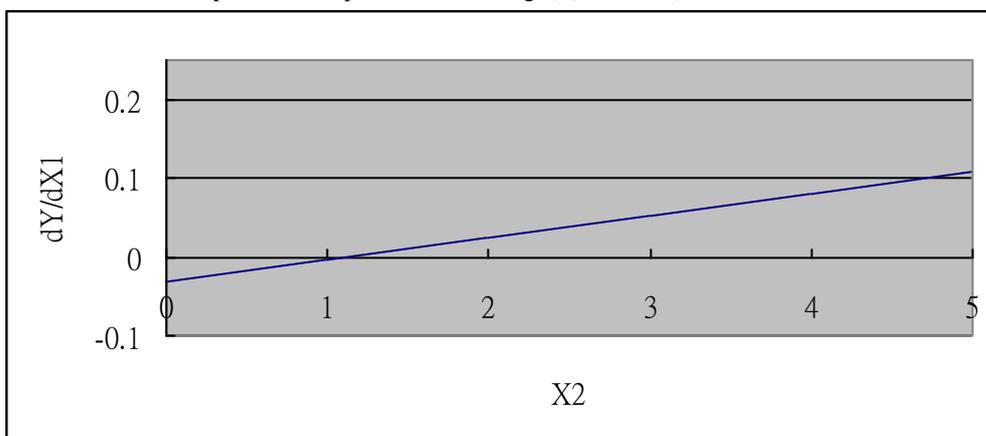
Table 5. Regression of Firm Performance on Internal Auditor Quality, Growth and Audit Committee Independence

VAR	Equation A	Equation B
	IAQ = PSAPA	IAQ = PSAQ
	Coefficients	Coefficients
Intercept	0.167**	0.186***
IAQ (X_1)	-0.053**	-0.064***
Growth (X_2)	-0.059*	-0.071**
ACI (X_3)	-0.178**	-0.304***
IAQ*Growth ($X_1 X_2$)	0.044***	0.049***
IAQ*ACI ($X_1 X_3$)	0.063**	0.123***
Growth*ACI ($X_2 X_3$)	0.160***	0.206***
IAQ*Growth*ACI ($X_1 X_2 X_3$)	-0.062***	-0.085***
Leverage	-0.082	-0.054
INV/TA	-0.002	-0.054*
AR/TA	0.090**	0.069*
NCL	-0.079	-0.080
Adj. R ²	0.302	0.383
F. Value	3.322	4.333

Notes: *, **, *** one-tailed statistical significance of white-corrected t values at the 0.10, 0.05 and 0.01 level respectively. The variables are defined as follows: ROA - return on assets; PSAPA - three-point scale of the proportion of internal audit staff who have prior work experience in auditing to the size of the internal audit function, 1 if $1 \leq \text{proportion} < 1.5$, 2 if $1.5 \leq \text{proportion} < 2$, 3 if $\text{proportion} \geq 2$; PSAQ - three-point scale of the proportion of internal audit staff who have accounting qualification to the size of the internal audit function, 1 if $1 \leq \text{proportion} < 1.5$, 2 if $1.5 \leq \text{proportion} < 2$, 3 if $\text{proportion} \geq 2$; ACI - indicator variable of audit committee effectiveness (the proportion of independent members to the total number of members in the audit committee), 0 if $\text{proportion} < 0.7$, 1 if $0.7 \leq \text{proportion} \leq 1$; Growth - market-to-book value of equity; Leverage - current and non-current liabilities divided by total equity; INV/TA - inventory divided by total assets; AR/TA - account receivable divided by total assets; NCL - net current liabilities divided by total assets.

Figure 1. Partial Derivatives of Firm Performance (Y) with respect to Internal Auditor Quality (X_1) on Firm's Growth (X_2)

Panel A: Internal audit staff with prior work experience in auditing. ($X_1 = \text{PSAPA}$)



Panel B: Internal audit staff with accounting qualification. ($X_1 = \text{PSAQ}$)

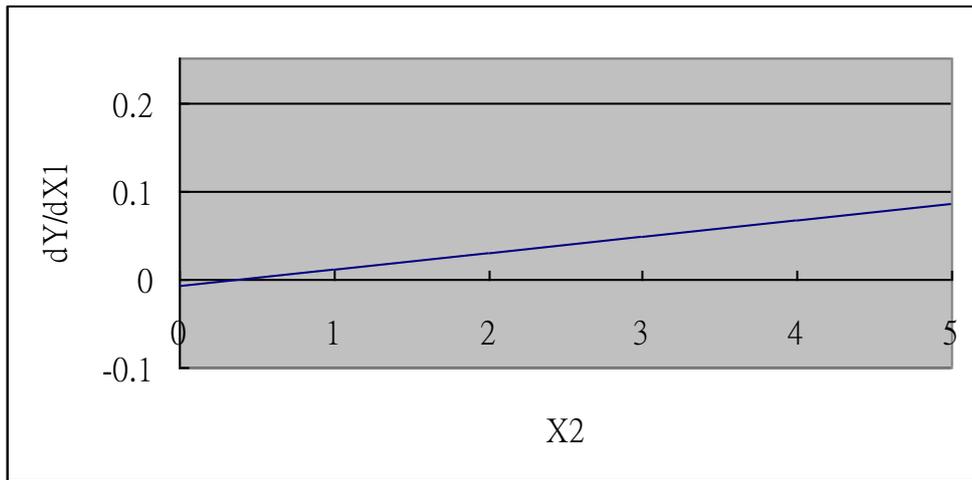
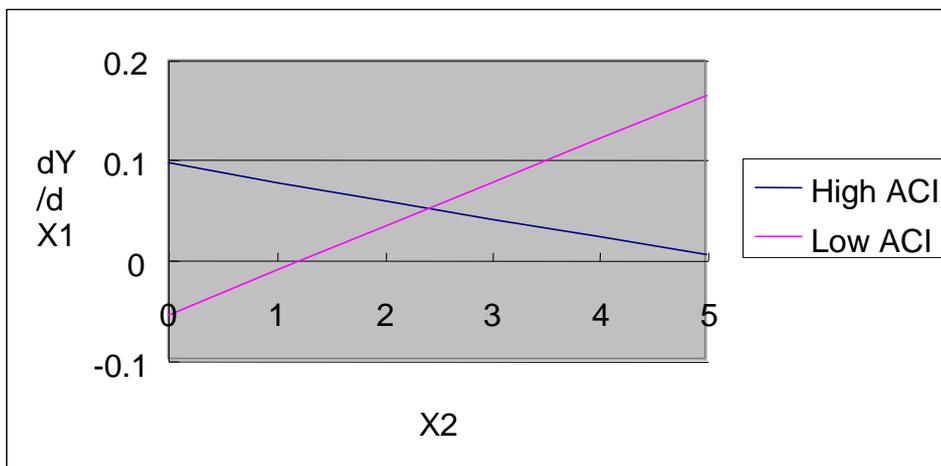


Figure 2. Partial Derivatives of Firm Performance (Y) with respect to Internal Auditor Quality (X_1) on Firm's Growth (X_2), for Different Levels of Audit Committee Independence (ACI) (X_3)

Panel A: Internal audit staff with prior work experience in auditing. ($X_1 = \text{PSAPA}$)



Panel B: Internal audit staff with accounting qualification. ($X_1 = \text{PSAQ}$)

