The Effects of Tone at the Top and Quality of the Audit Committee on Internal Auditors’ Internal Control Evaluations

Zhe (Isabel) Wang
University of Western Australia

ABSTRACT: Prior empirical evidence suggests that employees’ judgments are influenced by top management through the quality of the tone at the top of the organization. Given the previous evidence and the important role of internal auditors in ensuring quality corporate governance, this study examines whether internal auditors’ judgments on the effectiveness of internal controls are biased towards management’s expectation under the influence of a poor tone at the top. This study then investigates whether having an audit committee with high level of independence and expertise can mitigate this bias. Results of an experiment involving 80 internal auditors indicate that internal auditors are less concerned about potential management-related control issues when the tone at the top is poor. The results on the quality of the audit committee indicate that the influence of a poor tone at the top on internal auditors’ internal control evaluations can be mitigated by an effective audit committee with a high level of independence and expertise.

Keywords: Tone at the top; audit committee quality; internal audit

Data Availability: Contact the author for data availability

Acknowledgment: I greatly appreciate the advice of Neil Fargher in the development of this paper. I thank Gary Monroe, Gladys Lee and Stijn Masschelein for the helpful comments and the Institute of Internal Auditors Australia for its support of this paper. All errors and omissions remain my responsibility.

January 2015
I. INTRODUCTION

The internal audit profession expects internal auditors to play an active role in helping ensure effective corporate governance. This role encompasses risk management, and the examination and evaluation of the adequacy and effectiveness of the organization’s internal control system (Institute of Internal Auditors [IIA], 2009b). Recent evidence suggests that one of the main ways for senior management to engaging in fraudulent financial reporting is to take advantage of the internal control weaknesses or override the controls (American Institution of Certified Public Accountants [AICPA], 2003). If internal auditors are to play an active role in ensuring effective internal controls, greater attention must be paid to assessing the risks arising from management-related internal control weaknesses.

Assessing the risks arising from management-related internal control weaknesses creates a potential conflict for internal auditors. Prior research suggests internal auditors may strategically bias their evaluations of the effectiveness of internal controls when faced with significant management pressure (Christopher, Sarens & Leung, 2009). For example, Harrell, Taylor & Chewning (1989) find that internal auditors who have knowledge of management’s desired outcomes reach internal control evaluations which are more in align with management’s desired outcomes. The current study extends Harrell et al. (1989) by examining how management’s attitudes toward integrity and ethics affect internal auditors’ internal control evaluations.

Accordingly, the primary objective of this study is to investigate the influence of top management on internal auditors’ control evaluations via the tone at the top. Tone at the top refers to the entity wide attitudes of integrity and control consciousness, as exhibited by the most senior executives of an organization (Association of Certified Fraud Examiners [ACFE], 2006). Prior research on ethical culture and leadership suggests that a good tone at the top can help shaping employee’s ethical behaviour (Bartlett & Preston, 2000). For example, Hansen,
Stephens & Wood (2009) using a survey find that internal auditors who work in organizations that assess tone at the top tend to report higher tone at the top. However, it is not clear how tone at the top influences the judgments of internal auditors. This study fills the gap in the literature by investigating whether the tone at the top influences internal auditors’ control evaluations in an experimental setting.

The second objective of this study is to investigate whether a high quality audit committee can mitigate the potential bias in internal auditors’ internal control evaluations as a result of management influence. In the organizational context, internal auditors assist the audit committee to oversee an organization’s audit and control functions (Gramling, Maletta, Schneider & Church, 2004). Internal auditors’ judgments are influenced by the relationship between internal audit function and the audit committee. Prior research that examines the effects of the audit committee characteristics and activities on the committee’s relationship with the internal audit function suggests that an audit committee with high level of independence and expertise can help strengthen internal auditors’ status in the organization (e.g. Goodwin & Yeo, 2001; Zain, Subramaniam & Stewart, 2006). Following prior literature, this study uses independence and expertise of the audit committee members to proxy for the quality of the audit committee. In the situation that internal auditors are susceptible to biased judgments as a result of management influence, I expect that an audit committee with high level of independence and expertise will mitigate management’s influence on the objectivity of internal auditors’ internal control evaluations.

I conduct a 2*2 between-subjects experiment in which internal auditors evaluate the effectiveness of internal controls in a hypothetical company. In the experimental setting, participants are told that there is a potentially collusive relationship between the director of the department and suppliers of the case company as a result of management-related internal control weaknesses, but the company’s performance has not been affected. I investigate
whether the internal auditors’ control evaluations are influenced by the tone at the top, and whether an audit committee with high level independence and expertise mitigates this bias.

I find that the internal auditors’ internal control evaluations are biased in favour of management when the tone at the top is poor\(^1\). The results for the quality of the audit committee suggest that the internal auditors are more concerned about potential management-related internal control weaknesses when the audit committee is of high independence and expertise. Furthermore, the interaction between the tone at the top and the audit committee quality reveals that the internal auditors’ control evaluations can be improved by having a high quality audit committee when the tone at the top is poor in the organization.

This study extends prior research in several ways. First, this study provides evidence on how management’s attitudes towards integrity and ethics affect internal auditors’ internal control evaluations. While prior research on the relationship between senior management and internal auditor objectivity focuses on incentives and motivations (e.g. Arnold & Ponemon, 1991; Brody & Lowe, 2000; DeZoort, Houston & Peters, 2001), the results of this study suggest that the objectivity of internal auditors’ judgments can be enhanced by having a positive ethical corporate environment modelled and encouraged by senior management. Second, this study provides further evidence on the effect of the quality of the audit committee on internal auditors’ judgments. The findings of this study complement prior research\(^2\) by providing evidence that an audit committee safeguards the objectivity of internal auditors’ judgments, by increasing internal auditors’ confidence in reporting the results of an audit to the audit committee when the results are in conflict with management expectations. Third, this study contributes to internal auditing literature by developing a unique internal

---

\(^1\) To be consistent with the usage among practitioners (e.g. ACFE, IIA, and the Institute of Chartered Accountants in Australia) and academics, I use the phrase “poor tone at the top” in contrast to “good tone at the top”.

\(^2\) Prior research on the relationship between internal auditors and the audit committee has mainly focused on the internal audit function level, such as functioning reporting relationship with the board of directors or audit committee (Chadwick, 1995; Goodwin & Yeo, 2001; Kalbers, 1992; James, 2003; Messier & Schneider, 1988).
control evaluation task to reflect the current and emerging role of internal auditors in ensuring effective internal controls and quality corporate governance. The experimental task used in this study examines how internal auditors’ relationships with management and the audit committee influence their judgments, thereby impacting on the quality of their work performance.

This study has implications for the internal audit profession by investigating ways to facilitate the objectivity of internal auditors’ judgments by considering the unique position of internal auditors in the organization. The findings of this study suggest the important roles of corporate ethics and the audit committee quality in promoting internal auditor objectivity. The quality of internal auditors’ judgments and work performance could be enhanced by improving the tone at the top and the quality of the audit committee. This study also has implications for external auditors. The external auditor may rely on internal control testing performed by the internal auditor during the audit (The Auditing and Assurance Standards Board, 2009). Understanding factors affecting the objectivity of internal auditors’ internal control evaluations help the external auditor determine the effect of using the work of the internal auditor on the nature, timing or extent of the external auditor’s audit procedures.

The following section reviews prior literature and develops the hypotheses. This is followed by a description of research methods and presentation of the results. The paper concludes with a summary of findings, limitations, and opportunities for future research.

II. PRIOR LITERATURE AND HYPOTHESES

Internal auditor objectivity with respect to internal control evaluations

Internal auditors are expected to exhibit the highest level of professional objectivity in forming their judgments (IIA, 2009c). The objectivity of internal auditors is defined as “an unbiased mental attitude that allows internal auditors to perform engagements in such a
manner that they believe in their work product and that no quality compromises are made” (IIA, 2009a). Objectivity requires that internal auditors do not subordinate their judgment on audit matters to others (IIA, 2009a). This study examines the objectivity of internal auditors at the individual level because the exercise of objectivity is cognitive in nature. Objectivity relies on individual internal auditor’s personal attitude towards objectivity in forming judgment.

In studying internal auditor objectivity, prior research has focused on observable attributes of objectivity. Mutchler, Cheng & Prawitt (2001) consider objectivity as effectively analysing relevant and sufficient evidential matter and honestly reporting results to the appropriate parties without the auditor’s judgment being skewed. That is, whether internal auditors are able to analyse information in an objective manner and form judgments that are free of bias. Another line of research examines internal auditor objectivity as the auditors’ advocacy attitude towards their employer’s views. (e.g. Brody & Kaplan, 1996; Brody & Lowe, 2000). These experimental studies required internal auditors to perform an audit judgment task when they were assumed in either an auditing role or a consulting role for their employer or client. The results from these studies reveal that internal auditors’ budgeting decision is dependent on their company’s role in an acquisition. Ahlawat & Lowe (2004) extend these studies by examining internal auditors’ advocacy attitude towards their employer or client in an acquisition audit. Consistent with the previous research, the authors found that the judgments of internal auditors were significantly influenced by their advocacy position, suggesting that the objectivity of internal auditors could be influenced inappropriately by the employer-employee relationship.

Within the context of internal control evaluations, this study examines the objectivity of internal auditors’ judgments, using an advocacy perspective. Prior research has considered the objectivity of internal auditors’ judgments in internal control evaluations. Church &
Schneider (1992) examine the objectivity of internal auditors by investigating their evaluations of internal control system when they were previously involved in the design of a particular system. They find that internal auditors are able to uphold their objectivity in auditing a system for which they had a previous role in designing the system. Harrell et al. (1989) examine management influence on internal auditors’ internal control system evaluations, and find that internal auditors who have knowledge of management’s desired outcomes reach internal control evaluations that are more in consonance with management’s desired outcomes. This result suggests that the objectivity of internal auditors’ judgments is biased towards management.

This study extends Harrell et al. (1989) by examining how management’s attitudes toward integrity and corporate ethics affect the objectivity of internal auditors’ internal control evaluations. This study specifically investigates whether internal auditors’ assessments on management-related internal control weaknesses are in consonance with the management’s desired outcome and are influenced by management through the tone at the top.

**The effect of tone at the top on internal auditors’ internal control evaluations**

The tone set by top management, the corporate environment or culture within which financial reporting occurs, is the most important factor contributing to the integrity of the financial reporting process (Committee of Sponsoring Organizations of the Treadway Commission [COSO], 1987). Since employees pay close attention to the behaviour of top management, their judgments and decisions are influenced by the tone at the top created in the workplace by top management (Schwartz, Dunfee & Kline, 2005).

To derive a prediction on how internal auditors evaluate the internal control quality under the influence of the tone at the top, this study relies on social power theory from psychology literature (Lasswell & Kaplan, 1950; French and Raven, 1959). According to
social power theory, a manager can influence a follower’s judgments and decisions by tapping into certain values or motives (Lasswell & Kaplan, 1950). The set of values or motives which the manager can tap can influence the follower’s attitudes toward the manager and then change the follower’s judgments and behaviour. If upper management appears concerned with ethics and integrity, and communicates a positive value to employees (a good tone), employees will be more inclined to be concerned with the positive value. Conversely, if upper management does not uphold ethics and integrity, and communicates a negative value to employees (a poor tone), employees will be more prone to be concerned with the negative value.

Prior studies on internal auditors’ attitudes toward management or client suggest that maintaining a true objective view may not be possible for internal auditors because internal auditors tend to advocate with management (Brody & Lowe, 2000; Ahlawat & Lowe, 2004). Advocacy attitudes ultimately introduce bias in decision making (Mason & Levy, 2001). Following the social power theory, internal auditors acting as advocates for management are more likely to be influenced by the negative values set by top management, and therefore, their judgments are more likely to be insufficiently sceptical. Consistent with the prediction that internal auditors are advocates for top management (Harrell et al., 1989; Ahlawat & Lowe, 2004), I expect that internal auditors would be less concerned with potential management-related internal control weaknesses under a poor tone at the top. That is, under the assumption that if top management were to take advantage of the internal control weaknesses, internal auditors’ assessments on the effectiveness of internal controls are more likely to be higher to favour the management when the tone at the top is poor. This leads to the first hypothesis:

**H1:** The internal auditor’s assessment on the effectiveness of the internal controls is higher when the tone at the top is poor, compared to when the tone at the top is good.
The effect of audit committee quality on internal auditors’ internal control evaluations

An organization’s audit committee is considered to be an important component of internal controls (e.g. ASX Corporate Governance Council, 2003; COSO, 1992). A high quality audit committee is found to be positively related to effective corporate governance (e.g. Beasley, 1996; Beasley & Salterio, 2001; Bédard, Chtourou & Courteau, 2004). In the internal auditing context, internal auditors assist the audit committee to oversee an organization’s audit and control functions (Gramling et al., 2004). This study considers how advocacy by internal auditors can be mitigated by an effective audit committee.

I rely on the theory of informational social influence to derive predictions on how the audit committee can mitigate management influence on the objectivity of internal auditors’ judgments. According to Deutsch & Gerard (1955), informational social influence is a psychological need to be right when an individual makes a judgment to conform to the expectations of others. Following this theory, individuals will often look to others for cues concerning the correct judgments and behaviour when they are in a situation where they are unsure of the correct way to behave (Aronson, Wilson & Akert, 2005). Informational social influence is more powerful when others are perceived as especially knowledgeable (Aronson et al., 2005). In the context of auditor-client negotiation, prior research suggests that a high quality audit committee which comprises members with greater independence and accounting/financial expertise is more efficient in solving auditor-management disputes (DeZoort & Salterio, 2001; Keune & Johnstone, 2012) because an effective audit committee signals to auditors that appropriate accounting will be considered carefully, even if it is unfavourable to management (Ng & Tan, 2003).

Following prior literature (Ng & Tan, 2003; Keune & Johnstone, 2012), this study predicts that a high quality audit committee can serve as a useful control mechanism to mitigate any negative impact from management that could undermine internal auditors’
objectivity. Internal auditors are required to report their assessment of internal controls and other risk factors to the audit committee. Having an audit committee of high independence and expertise is expected to help to bolster internal auditors’ confidence in reporting the results of an audit to the audit committee when the results are in conflict with management expectations. Hence, internal auditors are more likely to objectively assess the merits of the issue. Under the assumption that if top management were to take advantage of the internal control weaknesses, this study expects that internal auditors would be more objective about potential problems when the audit committee is of high quality. Internal auditors’ assessments on the effectiveness of internal controls are more likely to be lower when the quality of the audit committee is high. This leads to the second hypothesis:

**H2: The internal auditor's assessment on the effectiveness of the internal controls is lower when the quality of the audit committee is high, compared to when the quality of the audit committee is low.**

Given the prediction that an audit committee with high quality plays a critical role in supporting internal auditors’ position in the organization, this study expects that a high quality audit committee mitigates the effect of a poor tone at the top on internal auditors’ internal control evaluations more than the effect of a good tone at the top. In the situation that internal auditors are susceptible to biased judgments in the face of conflicting incentives as a result of the influence of a poor tone at the top, a high quality audit committee is expected to have a larger mitigating effect by improving internal auditors’ confidence in reporting irregularities. When the tone at the top is good and the influence of management is positive, it is expected that internal auditors’ internal control evaluations will not differ significantly by having different quality in the audit committee. This leads to the third hypothesis:
**H3:** A high quality audit committee has a larger effect on the internal auditor’s assessment on the effectiveness of the internal controls when the tone at the top is poor, compared to when the tone at the top is good.

**III. RESEARCH METHOD**

This study employs a 2*2 between-subject experimental design. The dependent variable is the objectivity of internal auditors’ internal control evaluation. The between-subject factors being manipulated are: the tone at the top (good versus poor) and the quality of the audit committee (high versus low).

**Participants and administration**

Participants were recruited in two ways with the help of the IIA Australia. The experiment was run as a paper-based survey and an online survey. With the paper-based survey, participants were recruited by a training or meeting coordinator at the IIA training sessions and members meetings. With the online survey, through the IIA newsletter, participants were mailed a web link that directed them to the online survey. Both paper-based and online instruments have exactly the same materials and questions. Participants were randomly assigned to each of the four conditions of the 2*2 design. Participation was voluntary and financial incentives were not provided in this experiment.

In total, the sample includes 90 responses collected from the online and paper-based survey. For the online survey, I obtained 18 responses out of 1303 internal auditors who opened the emails to the first request. Follow-up emails to the non-responses to the first request generated another 31 responses. The total of 49 responses represents a 3.76 percent

---

3 I tested the differences in responses collected from the mail survey and online survey. The results do not systematically vary between the two administration methods.

4 For the paper-based survey, participants were randomly assigned and received the different versions of the instrument corresponding to the four experimental conditions at the training sessions and meetings. The online system automatically allocated participants randomly into different groups to show them one of the four versions of the instrument.
response rate\textsuperscript{5}. For the paper-based survey, I obtained 41 responses out of 100 internal auditors, yielding a response rate of 41 percent.

Ten responses are eliminated from the full sample based on a failed manipulation check, leaving 80 useful responses for testing the hypotheses. Within the 80 participants, 40 per cent of the participants indicated they were employed by a governmental organization, 31 per cent by a for-profit organization, and the remaining were outsourced internal auditors. In total, 29 per cent of the participants indicated they had external audit experience with an average of 3.62 years. Participants had an average of 8.33 years of internal audit experience.

\textbf{Task}

The current study differs from prior studies by developing a unique internal control evaluation task in the procurement process. This task was developed after consultation with representatives of the internal audit profession. Prior studies on internal auditors’ assessments of internal control effectiveness use decision-making tasks in the payroll process (Harrel et al., 1989), internal control design (Church & Schneider, 1992; Plumlee, 1985), and inventory valuation process (Brandon, 2010; Brody & Lowe, 2000; Glover, Prawitt & Wood, 2008). The task chosen in the current study uses decision-making tasks in the procurement cycle. It was considered more representative of the current internal auditing practice by the internal auditing profession than some previous experimental internal auditing tasks\textsuperscript{6}.

\textsuperscript{5} No response biases are detected from testing the differences in responses between the first and following requests.

\textsuperscript{6} The current experimental task is considered appropriate by the internal audit profession for three reasons. First, recent professional attention has highlighted the prevention and detection of internal fraud in corporations (ACFE, 2008). Procurement fraud is one type of internal fraud in corporations (ACFE, 2008) and is of interest to both external and internal audit professionals as the amounts involved are often significant (PWC, 2007). Second, as evidenced by the professional surveys conducted by ACFE (2008) and PWC (2007), an increasing number of fraudulent practices in the area of procurement are related to poor internal control systems and are perpetrated by individuals with significant operational knowledge of the internal control systems (Stern, 2008). Third, discussions with director-level internal auditors suggest that internal auditors often undertake similar tasks in the procurement cycles, and the task involves an internal auditor’s judgment on the operational effectiveness of the internal controls in the procurement cycle.
The experimental task used in this study requires participants to make judgments on the operational effectiveness of the internal controls and the risk of management overriding controls in the procurement department. The case information contains a description of a hypothetical company that is designed to have a poor internal control system in the procurement department. The potential risks in the internal controls are sourced from common internal control weaknesses that related to management-related-fraud in the procurement process described in PriceWaterhouseCoopers (PWC) (2007). Specifically, the case includes a potentially collusive relationship between the director of procurement and suppliers to the case company as a result of management-related internal control weaknesses.

The experimental instrument was modified based on feedback received from two director-level internal auditors. The task validity of the instrument was pilot-tested with eight internal auditors with varying levels of experience from two participating organizations.

The experiment consists of three parts. Part 1 presents a description of a hypothetical manufacturing company including the company’s background, a description of the key control policies and personnel in the procurement department, and a description of the internal audit department. Participants were instructed to assume the role of an internal auditor in the company. Participants were told that the internal audit team was assigned to assess the risks in the procurement process at the planning phase of the engagement.

Part 2 consists of the manipulation of the tone at the top and quality of the audit committee. Since participants were randomly assigned to one of the four treatment groups before the experiment began, each participant read one of the four versions of the description of the ethical culture and audit committee corresponding to the different groups to which they were assigned to. The order of the ethical culture and audit committee was pilot-tested to ensure that order of the manipulations did not influence the results. Subsequent to this information, participants were asked to make an assessment on the operational effectiveness
of the internal controls in the task and the likelihood of management overriding internal controls for private gains.

After providing the above judgments relating to the internal control evaluations, the participants responded to manipulation checks and other debriefing questions in Part 3. Demographic questions on participants’ work affiliation, experience, educational background and current position in the organization were also asked in the last part of the experiment.

**Dependent variable**

The dependent variable is the objectivity of internal auditors’ judgments within the context of internal control evaluations. Two measures are used. The objectivity of internal auditors’ judgments is primarily measured by asking internal auditors to assess the operational effectiveness of internal controls in the procurement process. As suggested by the internal auditing standards (IIA, 2009b), internal auditors should be alert to significant control issues when assisting the organization in maintaining effective controls. Given the involvement of potential management-related internal control weaknesses in the task, a higher assessment on the effectiveness of internal controls would suggest that the participant is less concerned about the management-related internal control risks. That is, the participant is more likely to bias his/her internal control evaluation towards management’s favour. This experiment adopts a 100-point scale to measure participants’ assessment on the operational effectiveness of the internal controls (0 = not effective at all, 50 = moderate effective, 100 = very effective).

Second, participants were asked to indicate the likelihood of management overriding internal controls for private gains in the procurement process. Overriding internal controls is considered as a significant control issue and is one of the ways to perpetrate fraud by senior management (AICPA, 2003). Therefore, internal auditors should be sensitive to the risk of management overriding controls when evaluating and assessing the effectiveness of internal controls.
controls. In the current experimental setting, a lower assessed likelihood of management overriding controls would suggest that the participant is less concerned about the management-related internal control issues under the influence of the management. Similar to the first measure, participants were asked to indicate their assessments on a 100-point scale (0 = minimum likelihood, 50 = moderate likelihood, 100 = maximum likelihood).

**Independent variables**

The first independent variable is the quality of the tone at the top in the case company. The tone at the top condition focuses on the behaviour of top managers in the workplace. The behaviour of top managers in the workplace is designed to differentiate a good tone from a poor tone. According to the National Business Ethics Survey (2005), employees are much less likely to commit misconducts when they feel that top management acts ethically in four important ways. In designing the good tone conditions, the experiment combines four ways of top management’s ethical action reported in the National Business Ethics Survey (2005): management talks about importance of ethics, informs employees, keeps promises, and models ethical behaviour. Conversely, in the poor tone condition, the four ways of top management’s ethical action are designed to be exactly the opposite of the good tone condition. See Figure 1 for a description of the wording of the manipulated variables.

<Insert Figure 1 here>

The second independent variable is the quality of the audit committee. The audit committee quality conditions focus on the independence and financial expertise of the audit committee members (Kristnan, 2005; Asare, Davidson & Gramling, 2008; Norman, Rose & Suh, 2011). Studies that have examined composition of the audit committee find that the strength of the relationship between the internal audit function and the audit committee is associated with having solely independent directors on the audit committee (Goodwin & Yeo, 2001; Zain et al., 2006) and having at least one accounting or financial expert (Asare et al.,
2008; Christopher et al., 2009; Goodwin & Teo, 2001; Goodwin, 2003; Raghunanadan, Read & Rama, 2001; Zain et al., 2006). In designing the high quality condition, the independence of the audit committee members is described as no disclosed relationship between the member and the company or its officers, and the financial expertise is described by the member’s professional certification and past working experience in the areas of accounting and finance. In contrast, in the low quality condition, two of the audit committee members are an officer and a former employee of the task company. None of the audit committee members is professionally certified either in accounting or finance.

IV. RESULTS

Manipulation checks

Manipulation checks were conducted to ensure that the participants understood the tone at the top and the quality of the audit committee conditions as intended. For the tone at the top condition, the participants were asked to indicate the level of tone at the top in the task company on an 11-point Likert scale (0 = not at all good; 10 = very good). Most participants correctly identified the level of the tone at the top for their respective condition except for four participants. Specifically, two participants in the good tone condition rated the tone at the top below the mid-point of the tone at the top scale and two participants in the poor tone condition rated the tone at the top above the mid-point of the scale.

To check the manipulation on the quality of the audit committee, the participants were firstly asked to indicate the level of financial expertise of the audit committee in the task company on an 11-point scale (0 = not at all competent; 10 = very competent). Three participants failed to correctly answer this question for their respective condition. Specifically, one participant in the high quality audit committee condition rated the financial competence below the mid-point of the scale, and two participants in the low quality audit committee
condition rated the financial competence above the mid-point of the scale. The manipulation on the quality of the audit committee was also checked by asking the participants to rate the level of independence of the audit committee in the task company on an 11-point scale (0 = not at all independent; 10 = very independent). Four participants in the high quality audit committee condition incorrectly rated the level of independence below the mid-point of the scale and failed the manipulation check. Overall, ten participants failed the manipulation checks and were excluded from the hypotheses testing.

**Test of hypotheses**

The primary measure for the dependent variable is an internal auditor’s assessment on the operational effectiveness of the internal controls. In the current experimental setting that the management is taking advantage of the internal control weaknesses for private gains, a higher assessment on the effectiveness of internal controls suggests that the participant is less concerned about the management-related internal control risks. Descriptive statistics across treatment conditions are reported in Panel A of Table 1 and the results for a two-way analysis of variance (ANOVA) are reported in Panel B.

<Insert Table 1 here>

On average, the internal auditors’ assessed effectiveness of the internal controls in the task is 41 percent across all experimental conditions. The pattern of means in Panel A indicates potential main effects of the tone at the top and the quality of the audit committee. Specifically, the internal auditors in the poor tone condition assessed effectiveness of the internal controls to be higher (mean = 52.00) than the internal auditors in the good tone condition (mean = 26.86). The participants in the low quality audit committee condition

---

7 All responses (N=90) were included in the initial ANOVAs across the two measures of the dependent variable. The results are consistent with the reported results.
assessed effectiveness of the internal controls higher (mean = 48.84) than participants in the high quality condition (mean = 31.89).\(^8\)

The ANOVA results indicate a significant main effect of the tone at the top (f = 77.15, p < 0.001), supporting H1 that the internal auditors’ assessments on the effectiveness of the internal controls is higher when the tone at the top is poor. This finding suggests that internal auditors are less concerned about the potential internal control problems under the influence of a poor tone at the top. The results on the quality of audit committee from Panel B indicate that the quality of the audit committee has a significant effect on the internal auditors’ assessed effectiveness of the internal controls (f = 33.39, p < 0.001). Consistent with the prediction in H2, the results indicate that the internal auditors’ assessments on the effectiveness of controls are lower when the quality of the audit committee is high. This finding suggests that the internal auditors’ suspicion about the potential internal control problems is higher when the quality of the audit committee is high, compared to when the quality of the audit committee is low. That is, having a high quality audit committee that comprises independent members and accounting/financial experts is likely to safeguard the objectivity of internal auditors’ internal control evaluations.

H3 predicts that an audit committee of high quality can mitigate the effect of a poor tone at the top on internal auditors’ internal control evaluations more than the effect of a good tone at the top. As reported in Panel B, the interaction of tone at the top and audit committee quality is significant (f = 6.26, p = 0.014). Because H3 expects that having a high quality audit committee will mitigate any effect of the negative influence of top management under a poor tone at the top but not under a good tone at the top, planned contrast tests are used to examine the interaction effect. Given that H3 also predicts that internal auditors’ control evaluations will not differ significantly by having a higher quality audit committee under a

\(^8\) One sample t-tests are conducted to compare all cell means for each of the four treatments (results are not tabulated). Overall, the results on the t-tests are consistent with the predictions in H1 and H2.
good tone at the top, I therefore use the following contrast codes (in parentheses) to examine the ordinal interaction: Good tone-High quality audit committee (-1); Good tone-Low quality audit committee (-1); Poor tone-High quality audit committee (0); Poor tone-Low quality audit committee (2)\(^9\). The results on planned contrasts are shown in Panel C of Table 1. An ordinal interaction contrast coding which reflects the specific directional predictions shows a significant result, supporting H3 \((t = 9.868, p = 0.000)\).

I further plot the mean of each treatment in Figure 2. As shown in Figure 2, the difference in mean assessments on the effectiveness of the internal controls across the audit committee conditions is larger when the tone is poor, compared to when the tone is good. The pattern of means in the interaction plot and the statistically significant interaction reveal that the quality of the audit committee has a larger downward effect on the internal auditors’ assessed effectiveness of controls when the tone at the top is poor than when the tone at the top is good. In the current experimental design that the management is taking advantage of the internal control weaknesses for private gains, this finding suggests that the internal auditors are able to make more objective assessments of the effectiveness of the internal controls under a poor tone at the top when the audit committee is of high quality.

<Insert Figure 2 here>

The interaction effect is further analysed by exploring the differences between the treatment conditions. Following Choo and Trotman (1991), a posteriori Tukey’s Honestly Significant Difference (HSD) test is used to identify the sources of differences. Table 2 presents the results of the multiple comparisons based on the Tukey’s HSD test. Consistent with the prediction in H3, the main results from Table 2 indicate that the participants in the poor tone at the top condition assessed the effectiveness of the internal controls to be lower when the quality of the audit committee is high than when the quality of the audit committee

\(^9\) I employed the alternative contrast weights (-2, -2, 1, 3). The statistical inference remained unchanged.
is low \( (t = -6.279, p < 0.001) \). The difference in means of the assessed effectiveness of the internal controls between two audit committee conditions, however, is not statistically significant when the tone at the top is good \( (t = -2.169, p = 0.141) \). In the current experimental setting, a higher assessment on the effectiveness of controls suggests that the internal auditor is less concerned about management-related control risks. This finding supports H3 that an audit committee of high quality has a significant downward effect on the internal auditors’ internal control assessments when the tone is poor.

<Insert Table 2 here>

Additional analysis

*Alternative measure of the objectivity of internal auditors’ internal control evaluations*

As a secondary measure of objectivity, this study also examines the objectivity of internal auditors’ assessments on the likelihood of management overriding controls as a subset of internal auditors’ internal control evaluations. In the current experimental setting, a lower assessed likelihood of management overriding controls suggests that the internal auditor is less concerned about the management-related internal control risks.

The results are reported in Table 3 with the descriptive statistics\(^{10}\) reported in Panel A and ANOVA results reported in Panel B. The results from the ANOVA indicate the tone at the top and the audit committee quality have significant main effects on the internal auditors’ assessments. The results support H1 and H2 that internal auditors are less concerned about the management-related internal control issues, under a poor tone at the top and an audit committee with low quality. The findings are consistent with the test of H1 and H2 using the primary measure.

\(^{10}\) The results from the descriptive statistics and t-tests on the differences in means show that the participants in the good tone condition assessed the likelihood of management overriding higher than the participants in the poor tone condition \( (t = 6.45, p <0.001) \). The internal auditors in the high quality audit committee condition assessed the risk of management overriding higher than the internal auditors in the low quality audit committee condition \( (t = 3.68, p < 0.001) \).
Planned contrasts in Panel C of Table 3 highlight a significant ordinal interactive effect between the tone at the top and the quality of the audit committee on internal auditors’ assessed likelihood of management overriding controls. Given the predictions in H3 (in parentheses), I use the following contrast codes to examine the ordinal interaction: Good tone-High quality audit committee (1); Good tone-Low quality audit committee (1); Poor tone-High quality audit committee (0); Poor tone-Low quality audit committee (-2). The results on the planned contrasts test reveal that the specific direction prediction is significant (t = 8.803, p = 0.000). That is, having a high quality audit committee can effectively reduce the negative influence of the management on internal auditors’ assessments on the risk of management overriding of controls.

Other analyses

The participants’ education level, professional qualifications and their current position in the organization are individually included in three one-way ANOVAs as the only independent variable. The statistics tests show no significant differences in these demographic characteristics across the two measures of the participants’ internal control evaluations. The addition of any of these variables in the test of hypotheses does not affect the main results.

An ANCOVA analysis is conducted to determine whether the participants’ accounting and auditing experience would influence the hypotheses testing. The dependent variable is internal auditors’ internal control evaluations across two measures. The independent variables represent the manipulations of the tone at the top and the quality of the audit committee. Covariates are included for the participants’ working experience in external auditing, internal

---

11 The statistical inference remained unchanged when I employed the alternative contrast weights (2, 2, -1, -3).
auditing, public companies and manufacturing companies. None of these factors are significant in this analysis.

I classify the participants into three groups according to the type of employer the participants currently work for: internal auditors that work for governmental organizations, internal auditors that work for public companies, and outsourced internal auditors. The results from the three-way ANOVA analysis on the internal auditors’ assessments on the effectiveness of internal controls show that the type of employer is not a main effect on internal auditors’ judgments. However, the type of employer that the internal auditor works for has joint effects with the tone at the top and with the quality of audit committee on the internal auditors’ judgments. Specifically, the results indicate that the mitigation effect of the quality of the audit committee on the negative influence of a poor tone on the internal auditors’ internal control evaluations is most pronounced for the participants who are in-house internal auditors in public companies, followed by the participants who are employed in outsourced internal audit services. This finding suggests that the internal auditors in public companies are more likely to consider a high quality audit committee as an effective mechanism to improve their confidence in reporting the results of their internal control evaluations than the outsourced internal auditors and the internal auditors in governmental organizations.

V. CONCLUSION

This study investigates whether top management’s attitudes towards ethics and integrity influences the objectivity of internal auditors’ judgments. I specifically examine whether internal auditors’ internal control evaluations are biased in favour of the management under a poor tone at the top and whether this bias is mitigated by the quality of the audit committee.
Results of an experiment involving 80 internal auditors indicate that internal auditors’ internal control evaluations are biased towards management’s favour when the tone at the top is poor. Consistent with H1, the results indicate that the internal auditors’ assessments on the effectiveness of internal controls are lower when the tone at the top is poor, compared to when the tone at the top is good. In the experimental setting that the management is taking advantage of the internal control weaknesses, this finding suggests the objectivity of internal auditors’ assessments of potential management-related control issues is compromised when the tone at the top is poor.

This study also investigates the benefit of having a high quality audit committee on safeguarding internal auditor objectivity. Consistent with H2, I find that internal auditors’ evaluations of the effectiveness of internal controls are more objectivity when the quality of the audit committee is high, compared to when the quality of the audit committee is low. This finding suggests that internal auditors’ tendency to advocacy can be mitigated by an effective audit committee with a high level independence and expertise. The significant interaction effect between the tone at the top and audit committee quality reveals that a high quality audit committee can be considered as an effective mechanism to mitigate the influence of a poor tone at the top on internal auditors’ internal control evaluations.

This study is subject to three limitations. The first limitation concerns the experimental task that was used in this study. Based upon professional input, this study differs from prior studies by developing a unique internal control evaluation task in the procurement process. This experimental task addresses one very important aspect of organizational life: the objectivity of internal auditors’ judgments in the face of conflicting incentives under the influence of management. This task has not however been used before and future calibration is required. Secondly, valid and reliable data are difficult to collect when studying this sensitive topic (Kaptein, 2011; Near & Miceli, 1995). The internal
auditors may make different judgments in the practice when they face significant personal costs. That is, their judgments in the experimental conditions may not be generalized to their actual behaviour. The findings from this study, therefore, must be interpreted with respect to this limitation. Finally, this study does not obtain any information on how internal auditors will respond to observed wrongdoings subsequent to their internal control evaluations. Kaptein (2011) examines five types of responses of employees to observed wrongdoings. Future research could examine types of internal auditors’ responses to management misbehaviour within this context.
REFERENCES


Figure 1: Description of manipulated variables

<table>
<thead>
<tr>
<th>Good tone at the top</th>
<th>Poor tone at the top</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Company has policy statements and a code of conduct which include clear principles to guide employees’ behavior in all sorts of situations. The code of conduct applies to all employees, including top management. The importance of ethical behavior is frequently highlighted by management through regular staff meetings. Employees are encouraged to communicate to their supervisors both “good news” and “bad news”. Good job performance is well recognized. Top management always rewards appropriate behavior and addresses inappropriate behavior.</td>
<td>The Company has policy statements and a code of conduct which include general guidance on business ethics. The code of conduct applies to all employees, though top management seems not to be bound by the code of conduct. Employees read the code of conduct on the first day of their employment and seldom review it afterwards. The management team is autocratic. Employees are always afraid of delivering “bad news” to their supervisors. Good job performance is not always well recognized. Top management does not seem to care about or reward appropriate behavior and address misbehavior.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High quality audit committee</th>
<th>Low quality audit committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>The audit committee is comprised of three members, who are all independent directors (i.e., no disclosed relationship between the director and the company or its officers). Two of the audit committee members are Certified Practicing Accountants in Australia (CPAAs), while the third is a Certified Member of the Institute of Internal Auditors (CMIIA). All three have work experience in the same industry as the Company operates. All three have past experience in accounting and finance position; in fact, one of the audit committee members is currently employed as a senior officer at another listed company with significant financial oversight responsibilities.</td>
<td>The audit committee is comprised of three members, of whom one is an officer of the Company, and one is a former employee of the Company, who recently retired. The third audit committee member is an independent director (i.e. no disclosed relationship between the director and the company or its officers). None of the three audit committee members is professionally certified either in accounting, as their work experience has mainly been in areas outside of accounting and finance, or in internal auditing.</td>
</tr>
</tbody>
</table>
Figure 2: Plot examining the potential interaction between tone at the top and audit committee quality on the assessed operational effectiveness of internal controls

Notes:
Dependent variable
The internal auditor’s assessment of the operational effectiveness of internal controls is measured on a 100-point scale. A higher assessment suggests that the internal auditor is less objective about the management-related control risks in the experimental setting.
Independent variables
Tone at the top: the tone at the top in the company is manipulated at two levels: good tone v. poor tone.
Audit committee quality: the quality of the audit committee is manipulated at two levels: high quality v. low quality.
Table 1
Internal auditors’ assessments on the operational effectiveness of internal controls

Panel A: Mean of assessment on the operational effectiveness of internal controls (standard deviations) by treatment conditions

<table>
<thead>
<tr>
<th></th>
<th>Good tone</th>
<th>Poor tone</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>High quality audit</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>committee</td>
<td>21.88</td>
<td>39.52</td>
<td>31.89</td>
</tr>
<tr>
<td></td>
<td>(13.77)</td>
<td>(8.04)</td>
<td>(13.91)</td>
</tr>
<tr>
<td>N=16</td>
<td>N=21</td>
<td>N=37</td>
<td></td>
</tr>
<tr>
<td><strong>Low quality audit</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>committee</td>
<td>31.05</td>
<td>62.92</td>
<td>48.84</td>
</tr>
<tr>
<td></td>
<td>(12.86)</td>
<td>(14.29)</td>
<td>(20.95)</td>
</tr>
<tr>
<td>N=19</td>
<td>N=24</td>
<td>N=43</td>
<td></td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>26.86</td>
<td>52.00</td>
<td>41.00</td>
</tr>
<tr>
<td></td>
<td>(13.88)</td>
<td>(16.70)</td>
<td>(19.85)</td>
</tr>
<tr>
<td>N=35</td>
<td>N=45</td>
<td>N=80</td>
<td></td>
</tr>
</tbody>
</table>

Panel B: Test of hypotheses by treatment conditions

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>19306.231</td>
<td>3</td>
<td>6435.41</td>
<td>41.40</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Tone at the top</td>
<td>11992.73</td>
<td>1</td>
<td>11992.73</td>
<td>77.15</td>
<td>&lt;0.001  ***</td>
</tr>
<tr>
<td>Audit committee quality</td>
<td>5189.564</td>
<td>1</td>
<td>5189.564</td>
<td>33.39</td>
<td>&lt;0.001  ***</td>
</tr>
<tr>
<td>Tone at the top * audit</td>
<td>988.530</td>
<td>1</td>
<td>988.530</td>
<td>6.36</td>
<td>0.014   **</td>
</tr>
<tr>
<td>committee quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>11813.769</td>
<td>76</td>
<td>155.444</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected total</td>
<td>31120.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Panel C: Ordinal interaction contrast coding test

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Tone at the top: Audit committee quality</th>
<th>Good tone</th>
<th>Poor tone</th>
<th>T statistics</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>H3</td>
<td>-1</td>
<td>-1</td>
<td>0</td>
<td>2</td>
<td>9.868</td>
</tr>
</tbody>
</table>

Notes:

Dependent variable
The internal auditor’s assessment of the operational effectiveness of internal controls is measured on a 100-point scale. A higher assessment suggests that the internal auditor is less objective about the management-related control risks in the experimental setting.

Independent variables
Tone at the top: the tone at the top in the company is manipulated at two levels: good tone v. poor tone.
Audit committee quality: the quality of the audit committee is manipulated at two levels: high quality v. low quality.
**; *** indicate significance (one-tailed test) at the 5 and 1 per cent levels, respectively.
### Table 2

**Multiple comparisons of simple main effects on internal auditors’ assessment on the operational effectiveness of internal controls**

**Tukey’s HSD Test**
- Alpha = 0.05
- Error Degree of Freedom = 76
- Error Mean Square = 155.444
- Critical Value of Studentized Range = 2.817

<table>
<thead>
<tr>
<th>Comparisons of mean assessment on the operational effectiveness of internal controls</th>
<th>Computed t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>High quality audit committee vs. low quality audit committee on the poor tone condition</td>
<td>-6.279</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>High quality audit committee vs. low quality audit committee on the good tone condition</td>
<td>-2.169</td>
<td>0.141</td>
</tr>
<tr>
<td>Good tone vs. poor tone on the high quality audit committee condition</td>
<td>-4.266</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Good tone vs. poor tone on the low quality audit committee condition</td>
<td>-8.323</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Good tone and high quality audit committee condition vs. Poor tone and low quality audit committee condition</td>
<td>-10.199</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Good tone and low quality audit committee condition vs. Poor tone and high quality audit committee condition</td>
<td>-2.169</td>
<td>0.148</td>
</tr>
</tbody>
</table>

**Notes:**

**Dependent variable**
The internal auditor’s assessment of the operational effectiveness of internal controls is measured on a 100-point scale. A higher assessment suggests that the internal auditor is less objective about the management-related control risks in the experimental setting.

**Independent variables**
- Tone at the top: the tone at the top in the company is manipulated at two levels: good tone v. poor tone.
- Audit committee quality: the quality of the audit committee is manipulated at two levels: high quality v. low quality.

*** indicate significance (one-tailed test) at the 1 per cent level.
Table 3
Internal auditors’ assessments on the likelihood of management overriding controls

Panel A: Mean of assessment on the risk of management overriding controls (standard deviations) by treatment conditions

<table>
<thead>
<tr>
<th></th>
<th>Good tone</th>
<th>Poor tone</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High quality audit committee</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good tone</td>
<td>80.00</td>
<td>63.81</td>
<td>70.81</td>
</tr>
<tr>
<td>(14.61)</td>
<td>(11.61)</td>
<td>(15.16)</td>
<td></td>
</tr>
<tr>
<td>N=16</td>
<td>N=21</td>
<td>N=37</td>
<td></td>
</tr>
<tr>
<td>Poor tone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low quality audit committee</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good tone</td>
<td>71.58</td>
<td>45.00</td>
<td>56.74</td>
</tr>
<tr>
<td>(13.44)</td>
<td>(12.51)</td>
<td>(18.48)</td>
<td></td>
</tr>
<tr>
<td>N=19</td>
<td>N=24</td>
<td>N=43</td>
<td></td>
</tr>
<tr>
<td>Poor tone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>75.43</td>
<td>53.78</td>
<td>63.25</td>
</tr>
<tr>
<td>(14.42)</td>
<td>(15.27)</td>
<td>(18.33)</td>
<td></td>
</tr>
<tr>
<td>N=35</td>
<td>N=45</td>
<td>N=80</td>
<td></td>
</tr>
</tbody>
</table>

Panel B: Test of hypotheses by treatment conditions

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>13807.130</td>
<td>3</td>
<td>4602.377</td>
<td>27.44</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Tone at the top</td>
<td>8948.478</td>
<td>1</td>
<td>8948.478</td>
<td>53.35</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Audit committee quality</td>
<td>3627.405</td>
<td>1</td>
<td>3627.405</td>
<td>21.63</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Tone at the top * audit committee quality</td>
<td>527.941</td>
<td>1</td>
<td>527.941</td>
<td>3.15</td>
<td>0.080</td>
</tr>
<tr>
<td>Error</td>
<td>12747.870</td>
<td>76</td>
<td>167.735</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected total</td>
<td>26555.000</td>
<td>79</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Panel C: Ordinal interaction contrast coding test

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Contrast Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tone at the top:</td>
</tr>
<tr>
<td></td>
<td>Audit committee</td>
</tr>
<tr>
<td></td>
<td>quality:</td>
</tr>
<tr>
<td></td>
<td>Good tone</td>
</tr>
<tr>
<td></td>
<td>Poor tone</td>
</tr>
<tr>
<td></td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>weights</td>
</tr>
<tr>
<td></td>
<td>statistics</td>
</tr>
<tr>
<td></td>
<td>p-value*</td>
</tr>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>H3</td>
<td>1</td>
</tr>
</tbody>
</table>

*Two-tailed probability levels

Notes:

Dependent variable
The internal auditor’s assessment of the likelihood of management overriding controls is measured on a 100-point scale. A higher assessment suggests that the internal auditor is more objective about the management-related control risks in the experimental setting.

Independent variables
Tone at the top: the tone at the top in the company is manipulated at two levels: good tone v. poor tone.
Audit committee quality: the quality of the audit committee is manipulated at two levels: high quality v. low quality.
*** indicates significance (one-tailed test) at the 1 per cent level.