

The Value of Internal Audit in Fraud Detection

Paul Coram^a, Colin Ferguson^a, Robyn Moroney^b

^a*Department of Accounting and Business Information Systems,
The University of Melbourne, Melbourne 3010, Australia*

^b*Department of Accounting and Finance,
Monash University, Caulfield 3145, Australia*

May 2006

Acknowledgements

We thank Katherine Geddes for her invaluable research assistance on this project. We are also grateful for support from the Faculty of Economics and Commerce at The University of Melbourne as well as from an Australian Research Council Linkage Grant. We also thank the organizations who replied to our survey and to KPMG for providing access to its data on fraud.

The Value of Internal Audit in Fraud Detection

SUMMARY: In recent years the importance of good corporate governance has received significant public and regulatory attention. A crucial part of an entity's corporate governance is its internal audit function. In association with this, there has also been significant public concern about the level of fraud within organizations. This study aims to assess whether organizations with an internal audit function are more likely to detect fraud than those without. In this study we use a unique self-reported measure of fraud primarily relating to misappropriation of assets for the first time. The fraud data are from the 2004 KPMG Fraud Survey. The internal audit data are from a separate mail survey sent to the respondents of the KPMG Fraud Survey.

We find that organizations with an internal audit function are more likely than those without such a function to detect fraud within their organizations. Further, organizations that rely solely on outsourcing for their internal audit function are less likely to detect fraud than those that undertake at least part of their internal audit function themselves. This provides evidence that internal audit adds value through improving the control and monitoring environment within organizations to detect fraud. These results also suggest that keeping the internal audit function within the organization is more effective than completely outsourcing that function.

Key words: Internal audit, Fraud, Misappropriation of assets

INTRODUCTION

This study assesses the value of the internal audit function in detecting fraud within organizations. It also evaluates differences in the effectiveness of fraud detection between organizations that choose between different internal audit approaches such as: internal audit function within the organization (hereafter insourcing); outsourcing; and a combination of both.

This research is important because it jointly examines two important issues in contemporary corporate governance. By examining the relations between both the existence and the type (insourced versus outsourced) of internal audit function and the propensity to detect fraud, we evaluate the value of internal audit as a fraud detection mechanism in a topical contextual setting. Both internal and external auditors emphasize the importance of fraud assessment and detection partly in response to calls by professional bodies, regulatory agencies, and governments. This study also contributes to the literature in this area as it uses a unique and rich data set to evaluate fraud detection, which is the self-reported fraud from the 2004 KPMG Fraud Survey. This data expands our understanding of the value of the internal audit function and the important role it plays in detecting fraud.

The results show a significant positive relation between an organization having an internal audit function and the number and value of self-reported frauds. For those organizations with internal audit, partial or full insourcing increased the likelihood of fraud detection when compared with organizations that outsource the entire function. This finding is particularly interesting as it puts outsourcing in a different perspective

from prior studies, which found that financial statement users do not perceive a difference between internal audit insourcing and outsourcing (Lowe, Geiger and Pany 1999; James 2003) and companies that outsource believe that an external provider is technically more competent (Carey, Subramaniam and Ching 2006).

BACKGROUND AND HYPOTHESIS DEVELOPMENT

This section examines the value of the internal audit function as part of an organization's corporate governance structure. It further considers what differences there might be between an organization using its own staff or an external firm for its internal audit function. It then discusses the problem of fraud within organizations and research that has examined associations between governance variables and fraud. From this background two hypotheses are identified.

Internal Audit

Internal audit is an important part of the corporate governance structure within an organization. Corporate governance includes those oversight activities undertaken by the board of directors and audit committee to ensure the integrity of the financial reporting process (Public Oversight Board 1993). Three monitoring mechanisms have been identified in the corporate governance literature. They are external auditing, internal auditing, and directorships (Anderson, Francis and Stokes 1993, Blue Ribbon Committee

1999). The Institute of Internal Auditors (IIA) adopted a perspective that explicitly included a fourth cornerstone of corporate governance – the audit committee (IIA 2003).

In recent years, high profile corporate collapses have focussed attention on corporate governance and also emphasized internal auditing as part of the governance process. The IIA sees the objective of internal auditing as both supporting and strengthening the organization's governance mechanisms and evaluating and improving the effectiveness of risk management and control (IIA 1999).

The importance of internal auditing has also been recently underpinned by the decision of the New York Stock Exchange (NYSE) to amend its listing requirements to mandate that all listed companies in the United States (US) have an audit committee (NYSE 2003) to liaise between internal auditors, external auditors and management, ensuring the independence of the audit function. There is evidence in the US that the Securities and Exchange Commission (SEC) also attaches importance to internal auditing as there have been recent cases where enforcement actions by the SEC and subsequent settlements have required the registrant to engage internal auditors (Carcello, Hermanson and Raghunandan 2005). Recent changes to the Corporations Act and the Australian Stock Exchange (ASX) Listing Rules have strongly emphasized the importance of good corporate governance. Given the perceived importance of internal audit as part of good corporate governance, these changes are likely to enhance the role and value of internal audit in the Australian environment.

Despite the increasing importance of internal audit, there has been little research on the value of the internal audit function. Studies have used an agency cost framework to illustrate the value relevance of the internal audit function (e.g., Carey, Craswell and

Simnett 2000; Goodwin and Kent 2004; Carcello *et al.* 2005). While the common agency variables of size, debt or agency are not associated with the presence of an internal audit function in Australian family owned companies, internal and external audit are used as monitoring substitutes by these companies (Carey *et al.* 2000). In another Australian study, Goodwin and Kent (2004) found the existence of internal auditing to be positively associated with firm size, asset composition, the presence of an independent board chair, and presence of an audit committee. This study provides some evidence that firms with good corporate governance are more likely to have an internal audit function. They also unsurprisingly found that the number of internal audit staff is positively associated with total assets. A limitation of both of these studies is that they simply try to predict the existence of internal audit and did not examine the number of staff or size of the internal audit budget, likely predictors of audit quality.

A more recent study did examine the size of internal audit budgets in a US study and found that they were positively related to company size; leverage; financial, service, or utility industries; inventory; operating flows; and audit committee review of the internal audit budget (Carcello *et al.* 2005). They found that internal audit budgets were negatively related to the percentage of internal auditing that was outsourced. Their overall conclusion was that companies facing higher risk will increase their organizational monitoring through internal audit, providing evidence of the value of the internal audit function.

The role of internal audit in corporate governance has been analysed using the following categories: external auditors' evaluation of the quality of a client's internal audit function (IAF); determinants of the IAF reliance decision; extent and nature of the

IAF work relied on by the external auditors; and other aspects of the external audit affected by the IAF's involvement (Gramling, Maletta, Schneider and Church 2004). As can be concluded from these categories, the majority of the research on internal audit has related to perceptions of the external auditor and whether the external auditor utilises the internal auditor's work.

Another way of evaluating the work of the internal auditor is to examine how well they detect or prevent actual errors within an organization and there has been limited research on this topic. The number and magnitude of errors requiring adjustment by the external auditor have been found to be substantially lower for entities that had an internal audit department compared to those that did not have an internal audit department (Wallace and Kreutzfeldt 1991). This finding highlights the important role internal auditors play in error detection.

In recent times the role of auditors in detecting fraud as well as errors has received greater emphasis. In Australia additional requirements have been imposed on external auditors under AUS 210 'The Auditor's Responsibility to Consider Fraud in an Audit of a Financial Report' (AARF 2004). It is reasonable to expect that this increased emphasis on fraud awareness and detection has affected the internal auditors' duties as well. Even back in 1999, there is evidence that this was occurring in Australia. A survey was performed of internal audit in Australia that found that fraud detection was being included in internal audit work, whilst assisting the external auditor was being excluded (Birkett, Barbera, Leithhead, Lower and Roebuck 1999).

Some studies have evaluated the ability of internal auditors to perform fraud related work. Big 5, Non-Big 5, and internal auditors achieved a high level of consensus in their

financial statement fraud risk ratings suggesting that internal auditors are as aware as external auditors of where fraud is likely to be detected (Apostolou, Hassell, Webber and Summers 2001). When considering fraudulent financial reporting internal auditors think that fraud is the reason for an unexpected difference in income when (1) income is greater than expected and (2) when debt covenants are restrictive conditioned on income being greater than expected (Church *et al.* 2001). The focus of this research has been on financial statement fraud.

The source of the internal audit function is also an important consideration. Companies may use their own staff (insource), use an external firm (outsource) or a combination. While outsourcing the internal audit function does not significantly affect users' perceptions of auditor independence or financial statement reliability (Lowe *et al.* 1999) or their perception of protection from financial statement fraud (James 2003), companies that decide to outsource perceive that external providers are technically more competent (Carey *et al.* 2006). However, a limitation with these prior studies is that they were performed by measuring perceptions not actual performance. Given that many organizations make decisions about whether to insource or outsource their internal audit function the quality of performance of these respective functions is an issue that warrants further research.

Reviewing the internal audit literature shows limited research on the value of internal audit from: an agency perspective, the relative value of insourcing compared to outsourcing the internal audit function; and the ability to reduce the rate of errors in an organization. Further and related to this final point, a recent important consideration for internal auditors is not just in detecting errors but also in assessing the risk of fraud and

fraud detection. Assessing internal audits effectiveness in this area is another way to evaluate the value of the internal audit function and is explored in this present study.

The next section considers the issues associated with fraud within organizations and research on governance factors associated with fraud.

Fraud

Due to the number of high profile corporate failures in recent years, corporate fraud has been of significant public and regulatory interest. The penalties for fraudulent financial reporting have significantly increased to reflect society's view on this type of behaviour. For example, Bernard Ebbers the former chairman of WorldCom was recently jailed for 25 years for orchestrating a \$US11 billion financial statement fraud (Belson 2005). This increased importance has affected the work of the external financial statement auditor. In Australia, the Australian Auditing Standard AUS 210 "The Auditor's Responsibility to Consider Fraud and Error in an Audit of a Financial Report" has been amended a number of times in recent years to increase the external auditor's responsibility in this area (AARF 2004). It defines fraud as "...an intentional act by one or more individuals among management, those charged with governance, employees, or third parties, involving the use of deception to obtain an unjust or illegal advantage." (AUS 210, para. .06)

AUS 210 continues by stating that there are two types of intentional misstatements relevant to the auditor. Firstly, there are misstatements that result from fraudulent financial reporting and secondly, there are misstatements that result from

misappropriation of assets. Much of the research to date has examined associations between corporate governance structures and financial statement fraud, some of which is discussed below.

While, inconsistent results have been found in relation to audit committee existence and the likelihood of financial statement fraud (Beasley 1996; McMullen 1996; Dechow, Sloan and Sweeney 1996), audit committee effectiveness has been found to reduce the likelihood that companies are sanctioned for fraudulent financial reporting (Abbott, Parker and Park 2000). A positive relation was found between concentration of power in the hands of insiders and the likelihood of issuing fraudulent financial statements (Dunn 2004). In Australia, a negative relation has been found between the proportion of independent directors and institutional investors and the likelihood of fraud, while a positive relation was found between duality (chair of board and also the chief executive officer) and the likelihood of fraud (Sharma 2004). One difference from this study to others was that in his measure of fraud Sharma (2004) used both financial statement fraud *and* misappropriation of assets.

One significant difficulty in performing research on fraud is that data availability is limited. The above studies obtained primarily financial statement fraud data from a number of different sources, including the SEC's Accounting and Auditing Enforcement Releases (AAERs) (Beasley 1996; McMullen 1996; Dechow *et al.* 1996; Abbott *et al.* 2000; Dunn 2004), the press, including the Wall Street Journal (Beasley 1996; McMullen 1996; Dunn 2004)). In Australia Sharma (2004) obtained his financial statement and misappropriation of assets fraud sample from the Australian Securities and Investment Commission (ASIC) annual report publications and media releases, the press (the

Australian Financial Review, Business Review Weekly) and databases containing company announcements and details of legal cases.

While financial statement fraud has been the main focus of public interest and research, the other type of fraud that has received less research attention (except for Sharma (2004)) is misappropriation of assets, typically perpetrated by employees. This type of fraud requires external auditor attention under AUS 210. Despite the fact that AUS 210 describes this type of fraud as “...often perpetrated by employees in relatively small and immaterial amounts” (para. .11), the evidence suggests it is economically significant. It has been estimated that six percent of US company revenues in 2002 were lost through fraud committed by employees (Holtfreter 2004) and of the 491 Australian and New Zealand companies who responded to the KPMG survey in 2004, close to half had experienced a fraud costing them \$457 million (KPMG 2004). The vast majority of the fraud reported in the KPMG survey related to misappropriation of assets. Clearly this is a significant problem for many organizations and is the focus of this study.

In summary, for previous research studies, the reported fraud has become public and therefore it most likely relates to a serious breakdown in controls and/or governance structures. In particular, for financial reporting fraud, there is a high likelihood that senior management have been complicit in the activity. Therefore it is not surprising that much of the prior literature has found linkages between poor corporate governance practices and this type of fraud. The next section of this paper discusses how the hypotheses to be addressed are developed and the following section explains the unique measure of fraud (i.e. self reported fraud from the KPMG 2004 Fraud Survey) used in the present study.

Hypotheses

The internal audit function is an important function that has been shown to add value (Carey *et al.* 2000; Goodwin and Kent 2004; Carcello *et al.* 2005) and reduce detected errors by external auditors (Wallace and Kreutzfeldt 1991). Its objectives are to improve the effectiveness of risk management, control, and governance (IIA 1999) and it is considered an important governance tool to protect corporations from internal criminal behaviour (Nestor 2004). Therefore we expect that the ability to detect fraud will be enhanced for organizations that have an internal audit function compared to those that do not.

From the above discussion, we expect that internal audit is associated with a greater propensity to detect and report fraud and the following hypothesis is therefore presented:

- H1:** Organizations that have an internal audit function are more likely to detect and report fraud than organizations that do not have an internal audit function.

The other research issue addressed by this study is the relative value of insourcing compared to outsourcing the internal audit function. Prior research has focussed on eliciting users' and company officers' perceptions about the relative value of the two approaches (Lowe, Geiger and Pany 2001; James 2003; Carey *et al.* 2006). When the internal audit function is wholly outsourced, those conducting the audit have less opportunity to get to know the organization and as such are less likely to detect frauds

such as asset misappropriation. This research examines whether outsourcing does in fact make a difference, and the following hypothesis is therefore presented:

H2: Organizations that insource at least part of their internal audit function are more likely to detect and report fraud than organizations that completely outsource their internal audit function.

METHOD

Data

Internal Audit Survey Data

The internal audit survey was sent to organizations who responded to the 2004 KPMG Fraud Survey across Australia and New Zealand. The internal audit details were obtained by the development of a detailed survey which was sent to the organizations who had replied to the KPMG survey. There were 480 organizations where we had sufficient details to send the internal audit survey. From the initial mail out and a follow up mail out to non-respondents, the total number of replies was 324, giving a response rate of 67.5 percent. Table 1 shows the range of industries and government sectors that participated. The organizations are also economically very significant with median revenue of \$180m and a median number of employees of 545.

[Insert Table 1 here]

We measure the internal audit function by collecting data directly from those companies that participated in the 2004 KPMG Survey. In a mailed questionnaire we asked them whether they had an internal audit function and who performs that function, as well as other questions about the size of the internal audit function.

From the sample, 68 percent had an internal audit function. The performance of the internal audit was as follows: own staff 48 percent; external firm 27 percent; and a combination of own staff and external firm 25 percent.

Fraud Survey Data

The new measure of fraud used in this study is from the 2004 KPMG Fraud Survey. KPMG has been performing this biennial survey of fraud within Australian and New Zealand organizations since the early 1990s. In the most recent survey in 2004, KPMG sent their research instrument to 2,164 of Australia's and New Zealand's largest organizations. Usable responses were received from 491 organizations. Of these organizations 45 percent had experienced fraud.

Fraud was defined in the KPMG Survey (KPMG 2004) as:

Any dishonest activity involving the extraction of value from a business, directly or indirectly, regardless of whether the perpetrator benefits personally from his or her actions.

The amount of fraud reported in the KPMG survey was for the two year period before the survey was administered. This is obviously a percentage of the total fraud that would have been perpetrated against these organizations during that period. The total fraud is an unknown quantity. However, it is a much closer assessment of the reality of fraud within

organizations than any other studies. For example, Sharma (2004) attempted to find fraud in Australian companies from external data sources. In a search from 1988 to 2000, only 19 cases were found where there had been misappropriation of a company's assets and only 12 related to falsifying financial statements, giving a total of 31 fraud firms. The KPMG study is a far richer data set of fraud, for the two year period up until 2004, from the 491 organizations who replied, 206 organizations reported an experience of fraud.¹

Of the 324 respondents to the internal audit survey, 44 percent had experienced fraud as reported in the 2004 KPMG Fraud Survey. This is consistent with the fraud level of 45 percent from KPMG's total sample of 491 organizations. In the present study, of the organizations that experienced fraud, the median number of frauds reported was two and the median total value of frauds reported was \$73,599.²

RESULTS

Descriptive Statistics

Table 2 shows a comparison between descriptive statistics of organizations that reported and organizations that did not report fraud.

[Insert Table 2 about here]

¹ However, it is not a good data source for financial statement fraud as only three of the 206 cases of self-reported fraud in the KPMG study related to financial statement fraud.

² The mean frauds reported was 56 and mean total dollar value was \$931,758. These figures are significantly larger than the medians because the data were significantly skewed and there were a few outliers. We believe the median is therefore a better representation of the actual levels of fraud reported across the sample.

The mean revenue (\$1,165.77m compared to \$231.44m, $t=4.05$, $p<0.001$) and number of employees (3,825 compared to 618, $t=2.87$, $p=0.004$) were both significantly higher for organizations reporting fraud. Table 2 also shows some other comparisons between the number of internal audit staff (6.04 compared to 3.69) and days of external audit work (182 compared to 118) for fraud compared to no fraud organizations, however these differences were not significant. Whether the organization had internal audit (83% compared to 56%, $t=5.38$, $p<0.001$) was significantly different for fraud compared to no-fraud organizations. These differences are further examined in Table 3.

[Insert Table 3 about here]

Table 3 compares organizations with an internal audit function with organizations that do not have such a function. The mean revenue (\$853.86m compared to \$214.62m, $t=2.57$, $p=0.011$) and number of employees (2,775 compared to 518, $t=1.89$, $p=0.060$) were both significantly higher for organizations with internal audit functions and these differences were significant. Further, a comparison of the mean number (20.00 compared to 0.97) and total value (\$200,247 compared to \$16,657) of frauds for organizations with internal audit compared to no internal audit shows that the number of reported frauds was significantly higher for organizations with internal audit ($t=2.52$, $p=0.012$), although the difference was not significant for the total value. These data include the organizations that reported no fraud, the final descriptives reported in Table 3 show the differences only based on organizations that had reported fraud. The number (66.02 compared to 8.40) and value (\$1,066,094 compared to \$292,317) of frauds were not significantly for internal audit compared to no internal audit from the tests performed. Part of the reason for no

significant differences could be explained by looking at the reported medians for number (3 compared to 2) and value (\$80,000 compared to \$14,000).

From the above descriptive statistics it can be seen that the data were very skewed. Tests of normality were also performed and the data were found to not be non-normal with outliers. Therefore we used non-parametric tests to further analyse the data.

These tests also show that the size of the organization is significantly and positively associated with the likelihood of reporting fraud and having an internal audit function. We therefore performed further tests while controlling for size.

Primary Tests

The first test was a chi-test for relatedness or independence between whether the organizations had an internal audit function and the likelihood of them reporting fraud.

The results are presented below:

[Insert Table 4 about here]

The Chi-square value for the above table was significant (Chi-square test = 26.79, $p < 0.001$). This shows that there is a significant difference in the level of fraud dependent on whether there is an internal audit function. It shows that organizations having an internal audit function are more likely to have self-reported fraud and those without an internal audit function are less likely to have self-reported fraud. This is consistent with the comparisons in Table 2 and 3 and provides some evidence on Hypothesis 1. However, the size of the organization is highly correlated with both the likelihood of an internal

audit function and reporting fraud. Therefore further tests were performed controlling for the size of the organization.

These further tests were performed using analysis of covariance to assess whether there was a significant association between organizations with an internal audit function and the number and value of their self reported level of fraud. We also included the number of employees as a control variable because an organization's size is expected to be significantly related to the number and value of self reported fraud.³ Due to the concerns about the normality of the data: the number of employees; number of frauds; and total value of frauds were converted into ranked data for the analysis. This is a method suggested by Kachelmeier and Messier (1990) when there are significant concerns with data normality. The results are reported below:

[Insert Table 5 about here]

[Insert Table 6 about here]

Table 5 shows the ranked number (178.73 compared to 128.64, $F=5.64$, $p=0.018$) and value (178.87 compared to 128.36, $F=4.94$, $p=0.027$) of the reported frauds is significantly positively associated with whether the organization has an internal audit function, after controlling for size, which was highly significant as expected. Relating these results to Hypothesis 1, they show that there is a positive relation between the existence of an internal audit function and the propensity to detect and report fraud.

³ The number of employees was used rather than revenue because of the number of government organizations in the sample.

Tables 7 and 8 report the strength of the association between the type of internal audit function and the number and value of reported frauds.

[Insert Table 7 about here]

[Insert Table 8 about here]

The ranked number ($F=4.04$, $p=0.019$) and value ($F=3.42$, $p=0.034$) of the reported frauds is significantly different dependent on the type of internal audit function, after controlling for size. Hypothesis 2 relates to whether insourced compared to outsourced internal auditors are more likely to detect and report fraud. To address this question simple effects tests were performed. In comparing insourced only to outsourced only the difference was found to be significant for the number (117.49 compared to 84.34, $t=3.63$, $p<0.001$) and value (115.56 compared to 84.92, $t=3.37$, $p=0.001$) of reported frauds. In comparing a combination of insourced and outsourced to outsourced only the difference was also found to be significant for the number (123.67 compared to 84.34, $t=3.71$, $p<0.001$) and value (126.66 compared to 84.92, $t=3.85$, $p<0.001$) of reported frauds. There was no significant difference between insourced only and a combination of insourced and outsourced for number ($t=0.62$, $p=0.538$) or value ($t=1.12$, $p=0.266$) of reported frauds. Relating these results to Hypothesis 2, they show that any involvement of insourced internal auditors results in a greater likelihood of reporting fraud than having only an outsourced internal audit function.

DISCUSSION, CONCLUSION AND FUTURE DIRECTIONS

These results show that organizations with an internal audit function are more likely to detect and report fraud than those that do not. It is also shown that having some insourcing is more effective in detecting and reporting fraud than completely outsourcing the internal audit function. These results are important for many groups such as investors, regulators and corporate managers because it provides evidence on the value of the internal audit function, and this evidence of 'value' is also in the very topical and important area of fraud detection.

The measure of fraud used in this study is unique. Most prior studies operationalise fraud using externally reported financial statement fraud. This has not surprisingly been associated with poor corporate governance because the occurrence of a fraud within an entity reaching the public domain would suggest a breakdown of the governance and/or controls within an entity. This study uses self-reported fraud from the 2004 KPMG Fraud Survey which is a very rich data source and primarily relates to fraud associated with misappropriation of assets by employees or management. The fact that this data is self-reported is a key difference as organizations with poor controls will be unaware of fraud and organizations with good controls will be more aware of fraud because they have picked it up. However, the overriding benefit from using this data is that it is unique in that it provides some insights on factors associated with the ability to detect misappropriation of assets, which is economically significant for many organizations and the economy. It also encompasses a range of organizations in the economy, not just corporations.

A limitation in this study is the fact that having internal audit may be associated with organizations with good governance and internal controls, i.e. it is therefore these other factors that increase the propensity to detect the fraud rather than internal audit *per se*. This is a difficult issue to disentangle and is one that warrants further research.

There are many other areas of future research from the issues explored in this study. Firstly, the effectiveness and value of internal audit within organizations should be examined further in different ways. Most of the prior research has just focussed on perceptions from external auditors in this area. Secondly, auditors' responsibilities for fraud detection have clearly been increasing in recent years. There should be more research on ways to improve auditors' abilities in this area.

REFERENCES

- Abbott, L. J., S. Parker and Y. Park. 2000. The effects of audit committee activity and independence on corporate fraud. *Managerial Finance* 26: 55-67.
- Anderson, D., J. R. Francis and D. J. Stokes. 1993. Auditing, directorships and the demand for monitoring. *Journal of Accounting and Public Policy* 12 (4): 353-375.
- Apostolou, B. A., J. M. Hassell, S. A. Webber and G. E. Sumners. 2001. The relative importance of management fraud risk factors. *Behavioral Research in Accounting* 13: 1-24.
- Australian Accounting Research Foundation. 2004. *AUS 210: The Auditor's Responsibility to Consider Fraud in an Audit of a Financial Report*. Melbourne: AARF.
- Beasley, M. S. 1996. An empirical analysis of the relation between the board of director composition and financial statement fraud. *The Accounting Review* 71 (4): 443-465.
- Belson, K. 2005. WorldCom head is given 25 years for huge fraud. *The New York Times* 14 July, p.A.1.
- Birkett, W. P., M. Barbera, B. Leithhead, M. Lower and P. Roebuck. 1999. *Internal Auditing: The Global Landscape*. Institute of Internal Auditors' Research Foundation. Florida.
- Blue Ribbon Committee. 1999. *Report and Recommendations of the Blue Ribbon Committee on Improving the Effectiveness of Corporate Audit Committees*. New York, NY, New York Stock Exchange.
- Carcello, J. V., D. R. Hermanson and K. Raghunandan. 2005. Factors associated with U.S. public companies' investment in internal auditing. *Accounting Horizons* 19 (2): 69-84.

- Carey, P., A. Craswell and R. Simnett. 2000. Voluntary demand for internal and external auditing by family businesses. *Auditing: A Journal of Practice & Theory* 19 (supplement): 37-51.
- Carey, P., N. Subramaniam and K.C.W. Ching. 2006. Internal audit outsourcing in Australia. *Accounting and Finance* 46: 11-30.
- Church, B. K., J. J. McMillan and A. Schneider. 2001. Factors affecting internal auditors' consideration of fraudulent financial reporting during analytical procedures. *Auditing: A Journal of Practice & Theory* 20 (1): 65-80.
- Dechow, P. M., R. G. Sloan and A. P. Sweeney. 1996. Causes and consequences of earnings manipulations: An analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research* 13 (1): 1-36.
- Dunn, P. 2004. The impact of insider power on fraudulent financial reporting. *Journal of Management* 30 (3): 397-412.
- Goodwin, J. and P. Kent. 2004. Factors affecting the voluntary use of internal audit. *Working Paper, Queensland University of Technology*.
- Gramling, A. A., M. J. Maletta, A. Schneider and B. K. Church. 2004. The role of the internal audit function in corporate governance: A synthesis of the extant internal auditing literature and directions for future research. *Journal of Accounting Literature* 23: 194-244.
- Holtfreter, K. 2004. Fraud in US organizations: An examination of control mechanisms. *Journal of Financial Crime* 12 (1): 88-95.
- Institute of Internal Auditors (IIA) 1999. *Definition of Internal Auditing*. Altamonte Springs, FL, IIA.
- Institute of Internal Auditors (IIA) 2003. Simply Good Business. *Tone at the Top* (August).
- James, K. L. 2003. The effects of internal audit structure on perceived financial statement fraud prevention. *Accounting Horizons* 17 (4): 315-327.

- Kachelmeier, S. J. and W. F. Messier. 1990. An investigation of the influence of a nonstatistical decision aid on auditor sample size decisions. *The Accounting Review* 65 (1): 209-226.
- KPMG. 2004. *Fraud Survey 2004*. KPMG.
- Lowe, D. J., M. A. Geiger and K. Pany. 1999. The effects of internal audit outsourcing on perceived external auditor independence. *Auditing: A Journal of Practice & Theory* 18 (supplement): 7-26.
- Lowe, D. J., M. A. Geiger and K. Pany. 2001. The effects of internal audit outsourcing on perceived external auditor independence. *Journal of Accountancy* 191 (1): 90.
- McMullen, D. A. 1996. Audit committee performance: An investigation of the consequences associated with audit committees. *Auditing: A Journal of Practice & Theory* 15 (1): 87-103.
- Nestor, S. 2004. The impact of changing corporate governance norms on economic crime. *Journal of Financial Crime* 11 (4): 347-352.
- New York Stock Exchange (NYSE). 2003. *Amendment No.1 to Corporate Governance Rule Filing*. New York, NY: NYSE.
- Public Oversight Board. 1993. *Issues Confronting the Accounting Profession*. Stamford, CT: POB.
- Sharma, V. D. 2004. Board of director characteristics, institutional ownership, and fraud: Evidence from Australia. *Auditing: A Journal of Practice & Theory* 23 (2): 105-117.
- Wallace, W. and R. Kreutzfeldt. 1991. Distinctive characteristics of entities with an internal audit department and the association of the quality of such departments with errors. *Contemporary Accounting Research* 7 (2): 485-512.

Table 1
Descriptive Statistics for Sample

Size		
Revenue	- Mean	\$ 646,702,784
	- Median	\$ 180,000,000
Number of Employees	- Mean	2,043
	- Median	545
Industry	No.	%
Information technology	4	1.2
Transport and distribution	16	4.9
Building and construction	20	6.2
Retail	19	5.9
Health services	12	3.7
Manufacturing	43	13.3
Education	26	8.0
Food and primary production	16	5.0
Tourism and leisure	7	2.2
Telecommunications	4	1.2
Energy and natural resources	35	10.8
Financial services	46	14.1
Local government	29	9.0
State government	7	2.2
Federal / national government	6	1.9
Other	34	10.3
Total	324	100.0
Country		
Australia	308	95.1
New Zealand	16	4.9
Total	324	100.0

The sample consisted of 324 replies to the internal audit survey, resulting in a 67.5% response rate.

Table 2
Comparison of No-Fraud v Fraud Organizations

	No-Fraud Mean Median (St Dev) No.	Fraud Mean Median (St Dev) No.	<i>t</i>	<i>p</i>
Revenue (\$m)	231.44 120.00 (322.41) 180	1,165.77 286.06 (3,073.72) 144	4.05	<0.001
Employees	617.90 250.00 (970.36) 180	3,825.21 1,024.55 (14,971.80) 144	2.87	0.004
Resources for Internal Audit				
• Number of Internal Audit Staff	3.69 2.00 (8.24) 62	6.04 4.00 (9.10) 91	1.63	0.105
• Days of External Audit Work	117.61 60.00 (167.98) 57	182.27 105.00 (295.80) 56	1.43	0.155
Internal Audit	56%	83%	5.38	<0.001
Performance of Internal Audit				
Own Staff	42%	52%		
External Firm	36%	19%		
Combination	21%	29%		

1. The sample consisted of 324 replies to the internal audit survey.
2. Internal Audit = Whether the organization had internal audit.

Table 3***Comparison of Internal Audit v No Internal Audit Organizations*****Panel A: All Organizations**

	No Internal Audit	Internal Audit	<i>t</i>	<i>p</i>
	Mean (St Dev) n=105	Mean (St Dev) n=219		
Revenue (\$m)	214.62 (349.38)	853.86 (2,532.16)	2.57	0.011
Employees	517.95 (972.00)	2,774.74 (12,226.06)	1.89	0.060
Total Fraud				
• Number	0.97 (9.76)	20.00 (110.94)	2.52	0.012
• Value (\$)	16,657.14 (121,345.33)	200,246.51 (1,797,326.92)	1.05	0.297

Panel B: Organizations with reported fraud

	Mean <i>Median</i> (St Dev) n=25	Mean <i>Median</i> (St Dev) n=119	<i>t</i>	<i>p</i>
Total Fraud				
• Number	8.40 2.00 (21.40)	66.02 3.00 (303.84)	0.95	0.346
• Value (\$)	292,316.80 14,000.00 (653,299.90)	1,066,094.20 80,000.00 (4,767,859.34)	0.81	0.421

The sample consisted of 324 replies to the internal audit survey.

Table 4
Chi-Square Test – Internal Audit Compared to Fraud

		Internal Audit		
		Yes	No	Total
No Fraud	Count	100	80	180
	Expected count	121.7	58.3	180.0
	Percent within fraud	55.6	44.4	100.0
	Percent within internal audit	45.7	76.2	55.6
	Percent of total	30.9	24.7	55.6
Fraud	Count	119	25	144
	Expected count	97.3	46.7	144.0
	Percent within fraud	82.6	17.4	100.0
	Percent within internal audit	54.3	23.8	44.4
	Percent of total	36.7	7.7	44.4
Total	Count	219	105	324
	Expected count	219.0	105.0	324.0
	Percent within fraud	67.6	32.4	100.0
	Percent within internal audit	100.0	100.0	100.0
	Percent of total	67.6	32.4	100.0

1. The sample consisted of 324 replies to the internal audit survey
2. Chi-test for relatedness or independence between whether the organizations had an internal audit function and the likelihood of them reporting fraud.
3. Chi-square test = 26.79, $p < 0.001$

Table 5
ANCOVA – Internal Audit and Number of Reported Frauds

Panel A: Descriptive Statistics

Internal Audit	Ranked Number of Frauds Mean of Ranks (St. Dev)
Yes	178.73 (86.94) n=219
No	128.64 (66.28) n=105

Panel B: Analysis of Variance

Source of Variation	SS	df	MS	F-Ratio	F-Test p-level
<u>Main Effect</u>					
Internal Audit	31,464.65	1	31,464.65	5.64	0.018
<u>Covariance</u>					
Number of Employees (ranked)	313,298.32	1	313,298.32	56.14	<0.001
Error	1,791,513.16	321	5,581.04		

1. The sample consisted of 324 replies to the internal audit survey
2. ANCOVA performed to assess whether there was a significant association between organizations with an internal audit function and the number of their self reported level of fraud
3. The number of employees and number of frauds were converted into ranked data for the analysis

Table 6
ANCOVA – Internal Audit and Value of Reported Frauds

Panel A: Descriptive Statistics

Internal Audit	Ranked Value of Frauds Mean of Ranks (St. Dev)
Yes	178.87 (86.95) n=219
No	128.36 (66.51) n=105

Panel B: Analysis of Variance

Source of Variation	SS	df	MS	F-Ratio	F-Test p-level
<u>Main Effect</u>					
Internal Audit	26,797.96	1	26,797.96	4.94	0.027
<u>Covariance</u>					
Number of Employees (ranked)	365,254.39	1	365,254.39	67.27	<0.001
Error	1,742,937.01	321	5,429.71		

1. The sample consisted of 324 replies to the internal audit survey
2. ANCOVA performed to assess whether there was a significant association between organizations with an internal audit function and the value of their self reported level of fraud
3. The number of employees and total value of frauds were converted into ranked data for the analysis

Table 7***ANCOVA – Type of Internal Audit and Number of Reported Frauds*****Panel A: Descriptive Statistics**

Internal Audit	Own Staff	External Firm	Combination	Total
Ranked Number of Frauds	117.49 (58.90)	84.34 (49.54)	123.67 (62.94)	110.26 (59.55)
Mean of Ranks (St. Dev)	n=104	n=58	n=56	n=218

Panel B: Analysis of Variance

Source of Variation	SS	df	MS	F-Ratio	F-Test p-level
<u>Main Effect</u>					
Internal Audit	23,815.32	2	11,907.66	4.04	0.019
<u>Covariance</u>					
Number of Employees (ranked)	84,201.58	1	84,201.58	28.56	<0.001
Error	630,860.15	214	2,947.95		

1. The sample consisted of 324 replies to the internal audit survey
2. ANCOVA performed to assess whether there was a significant association between the type of internal audit function and the number of reported frauds.
3. The number of employees and number of frauds were converted into ranked data for the analysis

Table 8***ANCOVA – Type of Internal Audit and Value of Reported Frauds*****Panel A: Descriptive Statistics**

Internal Audit	Own Staff	External Firm	Combination	Total
Ranked Value of Frauds	115.56	84.92	126.66	110.26
Mean of Ranks (St. Dev)	(57.73)	(50.94)	(64.16)	(59.68)
	n=104	n=58	n=56	n=218

Panel B: Analysis of Variance

Source of Variation	SS	df	MS	F-Ratio	F-Test p-level
Main Effect					
Internal Audit	19,359.69	2	9,679.85	3.42	0.034
Covariance					
Number of Employees (ranked)	112,398.44	1	112,398.44	39.75	<0.001
Error	605,170.67	214	2,827.90		

1. The sample consisted of 324 replies to the internal audit survey
2. ANCOVA performed to assess whether there was a significant association between the type of internal audit function and the value of reported frauds.
3. The number of employees and total value of frauds were converted into ranked data for the analysis