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Demonstrating the Need to Include Multiple Firms in Forensic Accounting Research

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ABSTRACT

This study examines the probability of fraud estimates of auditors from five firms to test the need to include multiple firms in empirical forensic accounting research. We used an older data set as sample sizes of about 500 auditors participating in a four-hour exercise are rare in today's research environment. This research tested for differences among firms, staff levels and gender to determine whether differences could occur among auditing firms. While our analysis indicated no difference among firms for managers, there were significant differences among firms on an overall basis and for seniors. Finally, we also found a significant difference between male and female auditors' probability of fraud estimates. Although there were no difference between male-and-female seniors' levels of moral development (ethical sensitivity), there were significant differences between male-and-female managers' levels of moral development. Consequently, our premise of including multiple firms in empirical forensic accounting research was supported.

Keywords: Multiple firms, client integrity, red flags, auditors, gender difference.

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INTRODUCTION

Mautz and Sharaf (1961) maintain that auditors should be more cautious with a low-integrity client (i.e., a client that would be considered less trustworthy); consequently, auditors would establish an audit program for a less trustworthy client that is significantly broader in its scope than an audit program for a more trusted client. Maury's (2000, p. 118) research indicates that, because integrity is the basis of auditors' decisions, an audit provides stakeholders with a sense of "credibility, reliability and trust in the financial accounting information." While, Owhoso (2002) found that less experienced auditors were more sensitive to ethical information, prior literature shows that auditors with more experience are more efficient when determining estimates of fraud risk. For example, Nelson (2009) and Libby and Luft (1993) supported the notion that auditor knowledge results from experience and traits; these traits are considered fixed by the time training begins. Bernardi (1997) reported that managers had higher estimates of fraud than seniors. Additionally, Shaub and Lawrence (2002) found that staff auditors are less skeptical than more experienced auditors.

Bernardi (1997) conducted a simulated audit based in which management's inventory overstatement went undetected. He found that probability estimates of fraud positively associated with experience. The participants in Bernardi's study were under the impression that each group had a different case study; however, the only actual difference was the indicated level of integrity (low, high, or no indication) that each group received. This research demonstrates the need to include data from multiple firms in forensic research; we examine differences among firms, staff levels and gender to determine whether differences occur among auditing firms. We use the data from Bernardi's study in ways that were not reported in the original study.

LITERATURE REVIEW

Client Integrity

In the area of risk, client integrity influenced the decision process of internal and external auditors (Apostolou *et al.*, 2001) as well as forensic experts (Webber *et al.*, 2004). Management integrity and motives were significant factors in determining audit risk (Ponemon, 1993; Reckers and Wong-on-Wing, 1991). A client's risk assessments affected client acceptance decisions (Beaulieu, 2001), decisions about audit independence (Arnold *et al.*, 1999), and withdrawal decisions (Schroeder and Verreault, 1987). Audit risk influenced the audit planning process for continuing clients. Anderson and Marchant (1989) found that a client's negative behavior affected auditors' assessments of risk more than a client's positive behavior. For example, low management integrity indicates the need to require more persuasive external evidence (Kizirian *et al.*, 2005). Low client integrity ratings suggested the need to increase the level of detail examined for both European and US auditors (Bernardi and Arnold, 1994; Arnold *et al.*, 2001). Low client integrity ratings also indicated that auditors need to increase substantive test hours and should be less willing to use internal auditors when performing untestable work (Margheim and Label, 1990).

Krambia-Kapardis (2002) found that client integrity ratings influenced auditors' perceptions of information and alerted auditors to the possibility of fraud. Management integrity was also a consideration to assessing fraud risk; when management integrity is low, perceived risk is higher than when management integrity is rated as being high (Iyer and Reckers, 2007). Bernardi (1994) found that high moral development managers detected fraud at a higher rate when they received client-integrity data.

Red Flags Indicating Fraud

Mautz and Sharaf (1961, p. 29) suggest that, when an auditor finds indications that management's reputation is "questionable, he is likely to apply more rigorous procedures." Munter and Ratcliffe (1998), Albrecht and Willingham (1993), and Loebbecke *et al.* (1989) provide lists of attitudes and ethical values that could lead to management fraud that are indicative of management's integrity. Pincus' (1990) case study on fraud detection includes many of these increased risk indicators (i.e., red flags), which were included in SAS No. 53 (Auditing Standards Board, 1988, Section 316.10):

(1) Management operating and financing decisions are dominated by a single person.

(2) Management's attitude towards financial reporting is unduly aggressive.

(3) Management places undue emphasis on meeting earnings projections.

(4) Management's reputation in the business community is poor.

(5) Profitability of entity relative to its industry is inadequate or inconsistent.

(6) Sensitivity of operating results to economic factors is high (i.e., inflation, interest rates, and unemployment).

(7) Direction of change in entity's industry is declining, with many business failures.

Arnold *et al.* (2001) found that European audit partners and managers had lower (higher) materiality estimates for low (high) integrity clients. In a study of Canadian audit partners, Beaulieu (2001) found that client integrity was negatively associated to business risk and combined risk and that these auditors adjusted the amount of evidence they collected for client integrity. Additionally, Kizirian *et al.* (2005) found that auditors required more external information (i.e., persuasive evidence) when provided with data indicating low management integrity than when management integrity was either high or neutral. In an Australian study,

Krambia-Kapardis (2002) found that client integrity was significant with respect to perceptions of the relevance of the information and whether it alerted auditors to the possibility of management fraud.

Apostolou *et al.* (2001) found that the following red flags: compensation and aggressive accounting practices, inappropriate attitude about internal control, and a high turnover of senior management accounted for 30.5 percent of the variation in their model for the probability of fraud for Big-5 auditors. Similarly, Weber *et al.* (2004) found that the following red flags: compensation and aggressive accounting practices, inappropriate attitude about internal control, and a high turnover of senior management accounted for 38.7 percent of the variation in their model for the probability of fraud for Big-5 forensic experts.

Ashton (1982) noted that differences in auditing firms may be important consideration in audit decision research. Janell and Wright (1989) studied the structure imposed by firms on the risk assessment process and found significant differences in the risk assessment process. These differences could lead to different outcomes in risk evaluation as well as estimating the probability of fraud. However, these red flags are not unique to any auditing firm; consequently, our first hypothesis is (null form):

H1: *Probability of fraud estimates will not vary by auditing firm*.

Auditor Experience

Ashton (1982) noted that experience may also be important variable in audit decision research. Janell and Wright (1989) studied the structure imposed on the risk assessment process and found significant differences in level of staff tasking in the risk assessment process. Bonner (1990) found differences in performance between experienced and less experienced auditors in

risk assessment. These differences could lead to different outcomes in risk evaluation as well as estimating the probability of fraud.

Bernardi (1994) found that audit managers who were provided with information indicating that client integrity was either high or low detected fraud at a higher rate than audit managers who were not provided with an initial estimate of client integrity. Bernardi suggests that this difference may be the result of managers in the low-integrity group finding evidence in the case-study materials confirming to their initial information; whereas, managers in the high-integrity group finding evidence in the case-study materials refuting to their initial information.[1] Iyer and Reckers (2007) found that audit seniors who were provided with information indicating that client integrity was low estimated the probability of fraud at a higher rate than audit seniors who were not provided with an initial estimate of client integrity.

Nelson (2009) and Libby and Luft (1993) believe that auditors' knowledge results from a combination of personal traits and experience. According to Nelson (2009), skeptical action becomes part of a cycle. The auditor evaluates evidence, and action is then taken based on the evaluation; levels of skepticism help determine extent of evidence. Nelson maintains that the cycle becomes a part of the auditor's knowledge and experience. Shelton (1999) found that experience helps auditors to disregard irrelevant information when evaluating evidence.

Shaub and Lawrence (2002) conducted a study examining auditors' tendency to think and act skeptically. Their findings suggest that the least experienced auditors have a high tendency to think and act skeptically; whereas, the most experienced auditors have a high tendency to think skeptically but a low tendency to act skeptically. These results can likely be explained by auditors' reliance on non-error explanations for misstatements. For example, prior studies show that experience better enables auditors to understand frequencies of errors and non-errors

(Nelson 2009). Libby (1985) and Ashton (1991) found that auditors with more experience have a more accurate knowledge of common error causes and effects. Shaub and Lawrence (1999) found that more experienced auditors are likely to believe that non-errors explain audit findings. Additionally, Abdolmohammadi and Owhoso (2000) found that seniors were more sensitive to their integrity manipulation than managers. Given the research, our second hypothesis anticipates that:

H2: *Seniors' probability of fraud estimates will be higher than managers' probability of fraud estimates.*

Moral Development and Sensitivity

Moral development is a cognitive process that develops over time and is sequential because it progresses in one direction only (Rest and Narváez, 1994). These authors liken moral development to an individual climbing a staircase - development occurs in discrete steps. While individuals progress to higher levels of moral reasoning over time, the theory indicates that they cannot regress to a lower level. How morality is perceived is a function of an individual's level of moral reasoning (Kohlberg, 1969, 1981) in six stages.[2] In Stage Two, a person watches out for their own interests using a cost-benefit analysis. While Stage Three is a response orientation results in being considering the costs and benefits to one's immediate, Stage Four responses are those that follow society's rules. In Stages Five and Six of Kohlberg's model, personally held principles about how one should act for everyone's benefit are preeminent (Rest 1979a, 1986).

Rest developed the Defining Issues Test (DIT, 1979b), which has six scenarios, to measure one's level of moral development. The DIT consists of a series of questions that ask subjects to make an action decision about particular social dilemmas. Time constraints of the data-gathering process necessitated using the short form DIT, which consists of three scenarios

rather than the long version that has six scenarios. Rest's DIT presents 12 considerations for each of the three dilemmas that reflect reasoning at the different stage levels of moral development (Rest, 1979a). Of the 12 considerations provided in each scenario, individuals rank what they consider the four most important considerations for each of the three dilemmas. These top-four considerations are used when computing the individual's P score, which is the percentage of Stage Five and Six (highest principled stages) considerations used in each subject's decision process. P scores on the short form of the DIT range from zero to 90. A score of zero (90) indicates that all responses were below (at or above) Stage Five considerations on the DIT.

An auditor's level of moral development is important to the audit environment as both Ponemon (1993) and Bernardi (1994) found an auditor's level of moral development enhanced the auditor's sensitivity to a client's integrity. Ponemon (1992) analyzed the relationship between auditor experience and moral development using the DIT). Ponemon found an "inverted U" type association between staff level and moral development. As staff level increased, moral development also increased to manager and then leveled off (dropped below the level for new entries) for senior managers (partners). However, Bernardi and Arnold (2004) and Phillips *et al.*'s (2004) longitudinal data contradict these findings. Bernardi and Arnold (2004) found that moral development increased with an auditors' experience and suggest that Ponemon's findings were a product of research design that included data from only one Big-Eight firm.

While Owhoso (2002) reported that female auditors were less sensitive to the ethical information, Lampe and Finn (1992), Shaub (1994), Sweeney (1995) and Bernardi and Arnold (1997) report that female managers scored significantly higher on Rest's DIT. In a meta-analysis of 13 prior studies with a total sample size of over 1,600 students from colleges and universities throughout the United States, Bernardi and Bean (2009) found that female accounting majors

scored significantly higher on the DIT throughout their college education than male accounting majors. Given these findings, we believe that:

H3: *Female auditors' probability of fraud estimates will be higher than male auditors' probability of fraud estimates.*

RESEARCH DESIGN

Background

This study uses an older data set as sample sizes of about 500 auditors participating in a four-hour exercise are rare in today's research environment. As shown in Panel A of Table 1, Bernardi's (1997) sample consisted of 494 auditors (152 managers and 342 seniors) from 40 offices of five Big-Six firms; these auditors had on average 7.0 years experience for managers and 3.7 years for seniors. Participants were from a variety of audit specialties; consequently, the case study used a restaurant client's inventory account (i.e., one which should be easily dealt with by experienced auditors). The data in Panel B show the distribution by client type for each firm and staff level.

Case Study

Bernardi (1994, 1997) conducted a simulated audit using a modified version of Pincus' (1990) case study. One of Bernardi's modifications was the addition of information about client integrity in the form of a firm evaluation at the beginning of the case study for two of the groups (Appendix). The Pincus case study was derived from an actual audit conducted on a restaurant chain in which the ending inventory had been overstated by the management; this overstatement went undetected by the chain's auditor. The participants were randomly divided into three groups and told that they had been assigned to one of three cases. Subjects in the first (second) group

were provided with client data indicating an integrity rating of "2" ("8"), which indicated a relatively high (low) level of client integrity. The third group was used as a control and was not given client integrity information.[3] The participants were under the impression that the three cases were different; however, the only actual difference was the level of client integrity provided to the participants (See Appendix).

Sample sizes were 167 auditors in the high integrity group, 159 auditors in the control group and 168 auditors in the low integrity group. The gender composition for Bernardi's sample was:

(1) High-integrity group - 103 male and 64 female auditors (i.e., 62 percent men and 38 percent women);

(2) control group - 94 male and 65 female auditors (i.e., 59 percent men and 41 percent women).

(3) low-integrity group - 93 male and 75 female auditors (i.e., 55 percent men and 45 percent women); and,

The contact person from each firm indicated that the gender mix in Bernardi sample approximated the gender mix of the firm for those staff levels.

The auditors also provided with 70 additional pieces of audit evidence that would typically be found in the working papers of an audit. The auditors were told to use the information from the work papers to determine whether or not the inventory account was fairly stated. After making a decision on the inventory account, expressing confidence in the decision, and providing reasons for the decision, each subject turned in their case study material. The subject was then asked to complete a three page Background Questionnaire. Approximately

halfway through the questionnaire, the subject was asked to provide an estimate of the probability of fraud existing at the client from the case study they had just reviewed.

Current Methodology

This study differs from Bernardi's (1997) study in that we drilled down into the existing data (Bernardi, 1997) and examined firm, staff level, and gender differences. This study tests for three hypotheses: (1) firm differences; (2) experience level differences by firm; and, (3) gender differences by firm and client type. Bernardi (1997) included the short form of the DIT (Rest 1979b), which can estimate an individual's sensitivity to audit cues regarding the integrity of management. In this research, we use data from the DIT to explore a possible explanation for the differences in probability of fraud estimates between male and female auditors.

A Kolmogorov-Smirnov test for normality (Hollander and Wolfe, 1973, pp. 115-132) indicates the data are not normally distributed (Figure 1). We purposely used different scales for the vertical axis (i.e., number of auditors) in the three panels. We wanted to demonstrate that, after a large group in the 0-to10 percent range, the remaining frequencies were less than one third of this range except for the managers in the 21-to-30 range. The data in Figure 1 indicate that the overall frequencies are not a function of staff level; both managers and seniors had approximately the same distributions and frequencies.

Consequently, hypothesis testing was accomplished using nonparametric tests. For hypothesis one which tested for firm differences, we used the Dunn multiple comparison test (Hollander and Wolfe, 1973, pp. 115-132). For hypotheses two and three, which tested for experience and gender differences (respectively), we used the Mann-Whitney test (Conover, 1971, pp. 222-236). Hypothesis two, which examined experience differences, was tested for differences in experience (i.e., staff levels). Hypothesis three, which examined gender

differences, was tested for differences in estimates by male and female auditors for each firm and client type and staff level. All hypotheses were tested at the 0.10 level.[4]

DATA ANALYSIS

Overall Firm Differences (H1)

We tested hypothesis one on an overall basis (i.e., combining staff levels) and by staff level. Any firm differences would indicate support for our premise of including multiple firms in empirical forensic accounting research. The data in Table 2 provide overall firm averages (Panel A) as well as averages for managers (Panel B) and seniors (Panel C) by firm. We used two-tailed tests for hypothesis one. The data for the probability of fraud estimates for overall firm averages (Panel A) indicate significant differences between Firm One and Firms Two ($p = 0.01$), Four ($p = 0.01$) and Five ($p = 0.005$). Additionally, the average estimate of the probability of fraud of the auditors from Firm Three was significantly higher than for the auditors from Firm Five ($p = 0.01$).[4]

While the data in Panel B indicate no significant differences among firms for managers, this is not the case in Panel C for seniors. The probability of fraud estimates averages for seniors (Panel B) indicate significant differences between the seniors from Firm One and the seniors from Firms Two ($p = 0.01$), Four ($p = 0.01$) and Five ($p = 0.005$). Additionally, the average estimate of the probability of fraud of the seniors from Firm Three was significantly higher than for the seniors from Firm Five ($p = 0.10$). These differences support our premise of including multiple firms in empirical forensic accounting research.[5]

Experience Differences (H2)

We tested hypothesis two by examining differences between managers and seniors by firm. The data in Table 3 indicate no significant difference between the probability of fraud estimates between managers and seniors. While the test of our hypothesis about differences by staff level does not support our premise for including multiple firms in research designs, the differences among firms suggests future research. While the differences between managers' and seniors' estimates for Firms One, Three and Four are similar in their magnitude, the differences between managers' and seniors' estimates for Firms Two and Five follow a different pattern.

We also tested hypothesis two by examining differences between managers and seniors by firm and by client type. The data in Table 4 indicate only two significant differences between the probability of fraud estimates between managers and seniors – Firms Two and Five for the low-integrity client. In both cases, the probability of fraud estimates of managers was marginally ($p = 0.10$) higher than the probability of fraud estimates of their seniors. Consequently, on a client-type basis, our premise of including multiple firms in research designs is supported.

Gender Differences (H3)

We tested hypothesis three by examining differences between male and female auditors' estimates of the probability of fraud. The data in Figure 1 graphically depicts the differences between male and female auditors by client integrity type. The graph indicates that female auditors' estimates of the probability of fraud were consistently higher than the estimates for male auditors. While the graph indicates a difference of approximately ten percent for the high-and-low integrity groups' estimates of the probability of fraud, the difference between male and female auditors' estimates is approximately 20 percent for the control group.

The data in Table 6 shows the differences in probability of fraud estimates between male and female auditors by firm. While the data indicate no difference in the probability of fraud estimates between male and female auditors for Firms One and Four, there were significant differences ($p = 0.05$) in the probability of fraud estimates between male and female auditors from Firms Two, Three and Five. This supports our premise of including multiple firms in research designs. A test of the difference between the overall average estimates of the probability of fraud for female auditors (37.2 percent) was significantly higher ($p = 0.001$) than the overall average estimate of the probability of fraud for male auditors (29.7 percent).

The data in Table 6 shows the differences in probability of fraud estimates between male and female auditors by firm and client type. Although none of the differences were significant for Firm One, it was the only firm where males' estimates of the probability of fraud were higher than females' estimates.[6] While the data indicate no significant differences between genders for the auditors from Firm One for any of the three client groups, this is not the case for the other four firms. For the high-integrity group, there were significant gender differences for Firms Two ($p = 0.05$), Three ($p = 0.05$) and Five ($p = 0.005$). For the no-information group, there were significant gender differences for Firms Two ($p = 0.01$), Three ($p = 0.05$), Four ($p = 0.05$) and Four ($p = 0.05$). The only difference between males' and females' estimates of the probability of fraud for the low-integrity group was for Firm Two ($p = 0.10$). On an overall basis, there were significant differences between males' and females' estimates of the probability of fraud for the high-integrity group ($p = 0.005$), no-information group ($p = 0.01$) and low-integrity group ($p = 0.10$). The differences shown in Table 6 provide support for our premise of including multiple firms in empirical forensic accounting research. The differences among firms support our premise about including multiple firms in research designs.

As shown in Table 7, while female auditors scored higher than male auditors in each of the six comparisons (i.e., by client type and staff level), only the differences for managers were significant. Of the three separate groupings of managers, the differences between male and female managers was significant (High: $p = 0.005$, No Information: $p = 0.10$, and Low: $p = 0.05$). The overall difference between male and female managers was also significant ($p = 0.005$) (See: Bernardi and Arnold, 1997). Bernardi and Arnold (1997) also noted significant firm differences in the level of moral development.

The data in Table 8 provide a link between Table 6 and Table 7. The data show the differences in probability of fraud estimates by gender and DIT P scores. The differences in DIT P scores between male-and-female auditors by firm and client type are an expansion of the data from Table 7. While the overall data consistently suggest an association between DIT P scores and probability of fraud estimates, this is not the case when examining individual firms. In fact, the data indicate that, depending on the firm, research could provide different results concerning the association between DIT P scores and probability of fraud estimates. Consequently, the data in this table would also suggest the need to include multiple firms in research designs.

Additional Analyses

The data in Table 2 support our premise for including multiple firms in empirical research in forensic accounting; there were four significant firm differences. Firm One's auditors estimated the probability of fraud higher than the auditors from Firms Two, Four and Five, and Firm Three's auditors the probability of fraud higher than the auditors from Firm Five. While there were no significant differences for the managers from the five firms, the same overall firm differences were present for seniors; it appears that the seniors 'drove' the overall firm

differences. Our data indicate that research results are dependent on which auditing firm one samples. The question is how to control for this problem.

The data in Table 2 indicate four significant differences for seniors and for firms overall; given ten comparisons in each group, this indicates significant differences in 40 (4/10) percent of the comparisons. Given the increasingly problem with recruiting samples in today's leaner audit environment, we decided to combine our data for two firms to determine whether we could reduce the error rate below 40 percent. The data in Table 9 show our comparisons for all combinations of two firms for this sample compared to the other remaining firms for seniors (i.e., the group that 'drove' the differences). If examined by individual row, including two firms has a maximum error rate of 33.3 percent (1 of 3). If one looks at the data for individual firms and possible combinations, the data in Table 9 indicate that, if one includes two firms in the sample, the error rate varies between 8.3-and-16.7 percent, which is significantly lower than 40 percent. There are 30 distinct comparisons (i.e., half are duplicates); for example, Firms One and Two compared with Firm Three is the same as Firms Two and One compared with Firm Three. If one considers only the distinct comparisons, then the error rate is 13.3 (4/30) percent – four of the eight significant differences are also duplicates.

DISCUSSION AND CONCLUSIONS

It is important to remember that Bernardi's (1997) data set was gathered after the 'expectation-gap' auditing standards but was prior to Statement of Auditing Standard No. 82 (AICPA, 1997) being issued. Our research indicates that research findings based on one-firm studies can result in different findings. For example, while our data indicate no firm differences for audit managers, our data indicate overall firm differences and differences for seniors (Table

2). These overall and senior differences represent a 40 percent (4 of 10 in each case) chance of having different findings. Our data also indicate that differences among firms could also occur when comparing genders (Table 6). Finally, our examination indicated that female managers' level of moral development (as measured by the auditors' score on the DIT) was higher than male managers' level of moral development.

The first hypothesis concerned overall firm differences in single-firm studies, which found differences on an overall basis and for seniors (Table 2). Our additional analysis suggests that, if one includes at least two firms in the research design, the differences among sampled firms and the remaining firms can be reduced to 13.3 percent (Table 9). This suggests that including two firms in research increases the generalizability of the findings significantly. One criticism of the data set could be that there are only four now remain. While two of these firms merged, this still leaves the concern about Arthur Andersen. The lead author was told by Big-Four contacts that entire audit teams (including partners) from Arthur Andersen were hired by the other four firms in 2002. Consequently, had auditors from Arthur Andersen participated in this research, the remaining participants were distributed to the other four firms.

The second hypothesis concerned differences between staff levels. Even though the data on experience (Table 3) did not indicate significant differences on an overall firm basis, they still provide interesting contrasts. On an overall firm basis, the data for Firm Two indicate that managers and seniors had similar estimates of fraud, which suggests involving seniors in the risk assessment process relatively early in their careers. The data for Firms One, Three and Four indicate that managers estimated fraud about four percent higher than seniors, which suggests some degree of additional sensitivity for managers. Finally, on a client-type basis (Table 4), the

managers from Firms Two and Five estimated fraud higher than their seniors; the data for these firms indicate that managers are more sensitive to low-integrity ratings than their seniors.

The third hypothesis concerned differences between male and female auditors' estimates (Table 6). Again, our data support our premise about including multiple firms in one's research design. While there were no significant between Firm One's male and female auditors' estimates, Firm One was the only firm where male auditors had higher estimates than the female auditors in their firm. For the remaining four firms, female auditors' estimates were significantly higher than male auditors' estimates for eight of the 12 comparisons. This finding also indicates the need to include multiple firms in research designs. With respect to the differences noted in moral development and gender, the data from Bernardi and Bean (2007) suggest that female auditors' level of moral development will continue to be higher than that of male auditors. Given the increased number of female graduates majoring in accounting and the increased number of female graduates entering Big-Four public accounting firms, the level of sensitivity to clients' integrity should be higher than when this sample was gathered.

One final thought concerns the use of integrity manipulations in auditing and forensic research. If authors wish to draw conclusions from their research results, the manipulation in their methodology should elicit expected actions. For example, in the Abdolmohammadi and Owhoso (2000) and Owhoso (2002) studies, the high integrity information is but one piece of information given in the case, and the subjects receive only a weak signal that they will be asked about fraud or anything related to that information. Contrast this with the instrument used by Bernardi (1994, 1997) that makes the integrity information much more salient by placing it in context of client acceptance. Consequently, an integrity manipulation such as the one Bernardi used is more likely to sensitize the participants in the anticipated manner.

There are four apparent limitations in this research. The first is that we used an older data set (Bernardi, 1997); we justified the use given the increased difficulty to obtain large data sets in today's leaner audit environment. The second was that the sample was gathered prior to SAS 82 being issued. Our third limitation is that the data come from five of the existing Big-Six auditing firms; without disclosing which firms participated in Bernardi's research (e.g., confidentiality does not have a statute of limitations), at least one of these firms no longer exists as a separate entity. Our final limitation is that the sample includes only Big-Six auditing firms. These limitations provide opportunities for future research using a more recent sample that is trained to SAS 82 standards or using firms other than the Big Four.

ENDNOTES

1. Client integrity ratings did not influence the detection rates for seniors in Bernardi's (1994) study.
2. Rest's Defining Issues Test (1979b) does not use Stage One considerations.
3. Consequently, Pincus' data, which only included seniors and did not include any additional information about client integrity, are similar to the seniors in Bernardi's control (no-information) group.
4. The significance level in a multiple comparison test considers the number of groups in the sample. With five firms, the 0.10 level actually represents testing the hypothesis at the 0.005 level (.10/(k * (k - 1)).
5. The average probability of fraud estimate for Pincus' seniors is similar to this research (33.7 versus 31.9 respectively). Consequently, the average probability of fraud estimate for Pincus' seniors approximates that of Firm Three's seniors (33.7 versus 35.6 respectively).
6. The 10.7 point non-significant difference between males' and females' estimates for Firm One's no-information group deserves comment. Except for the estimates of two male auditors, the estimates in this group were evenly distributed between male and female auditors. Both of these male auditors estimated 100 percent, which was 20 percent higher than the next estimate. If these two were not included in the sample, the male auditors' average estimate would have been 43.5 percent compared to 39.9 percent for female auditors in the no-information group (i.e., only a 3.6 percent difference).

REFERENCES

American Institute of Certified Public Accountants (AICPA). 1997. *Consideration of Fraud in a Financial Statement Audit*, Statement of Auditing Standard No. 82, AICPA, New York, NY.

Albrecht, W. S. and J. J. Willingham. 1993. An evaluation of SAS No. 53, The auditor's responsibility to detect and report errors and irregularities. 102-124, in *The Expectation Gap Standards,* American Institute of Certified Public Accountants: New York, NY.

Anderson U. and G. Marchant. 1989. The auditor's assessment of the competence and integrity of auditee personnel, *Auditing: A Journal of Practice & Theory*, 8 (1): 1-16.

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.

Arnold, D. F., R.A. Bernardi, and P.E. Neidermeyer. 2001. The effect of client integrity, litigation, and culture on European materiality estimates. *International Journal of Accounting* 36: 459-483.

Arnold, D. F., R. A. Bernardi, and P. E. Neidermeyer. 1999. The effect of independence on decisions concerning additional audit work: A European perspective, *Auditing: A Journal of Practice & Theory*, 18 (Supplement): 45-67.

Ashton, A. H. 1982. The descriptive validity of normative decision theory in auditing contexts, *Journal of Accounting Research*, 20 (2): 415-428.

Ashton, A. H. 1991. Experience and error frequency knowledge as potential determinants of audit expertise. *The Accounting Review* 66 (2): 218–239.

Auditing Standards Board. 1988. *The Auditor's Responsibility to Detect and Report Errors and Irregularities*. Statement of Auditing Standard No. 53, New York: American Institute of Certified Public Accountants.

Beaulieu, P. R. 2001. The effects of judgments of new clients' integrity upon risk judgments, audit evidence, and fees. *Auditing: A Journal of Practice & Theory* 20 (2): 85-100.

Bernardi, R. A. 1997. Probability of fraud estimates: The impact of client integrity and competence. *Research on Accounting Ethics* 3: 119-139.

Bernardi, R. A. 1994. Fraud Detection: The Effect of Client Integrity and Competence and Auditor Cognitive Style. *Auditing: A Journal of Practice & Theory* 13 (Supplement): 68-101.

Bernardi, R. A. and D. F. Arnold. 2004. Testing the 'Inverted-U' Phenomenon in Moral Development on Recently Promoted Senior Managers and Partners, *Contemporary Accounting Research* 21 (2): 353-367.

Bernardi, R. A. and D. F. Arnold. 1997. "Examination of Moral Development within Public Accounting by Gender, Staff Level, and Firms." *Contemporary Accounting Research*, 14 (4), 653-668.

Bernardi, R.A. and D. F. Arnold. 1994. The influence of client integrity and competence and auditor characteristics on materiality estimates, *The Irish Accounting Review*, 1 (1): 1-23.

Bernardi, R. A. and D. F. Bean. 2007. Establishing a Standardization Sample for Accounting Students' DIT Scores: A Meta-Analysis, *Research on Professional Responsibility and Ethics in Accounting*, 12: 1-22.

Bonner, S. E. 1990. Experience effects in auditing: The role of task-specific knowledge, *The Accounting Review*, July: 72-92.

Conover, W. J. 1971. *Practical Nonparametric Statistics*. New York: John Wiley & Sons.

Hollander, M., and D. A. Wolfe. 1973. *Nonparametric Statistical Methods*, John Wiley, New York.

Iyer, G. S. and P M. J. Reckers. 2007. CEO Image, NAS and Risk Assessment. *Managerial Auditing Journal* 22 (9): 895

Janell, P. A. and A. Wright. 1989. Inherent risk and control environment assessment practices of major auditing firms: The state-of-art. Working Paper presented at the 1990 Northeast Regional AAA Conference.

Kizirian, T. G., W. Mayhew and L. D. Sneathen Jr. 2005. The impact of management integrity on audit planning and evidence. *Auditing: A Journal of Practice & Theory* 24 (2): 49-67.

Kohlberg, L. 1969. Stages and Sequences: The Cognitive Developmental Approach to Socialization, In *Handbook of Socialization* Theory and Research, ed. D. Goslin, 347-480, Rand McNally: Skokie, IL.

Kohlberg, L. 1981. Moral Stages and Moralization. In Moral Development and Behavior. ed. Thomas Lickona, Holt, Rinehart, and Winston: New York.

Krambia-Kapardis, M. 2002. A fraud detection model: A must for auditors. *Journal of Financial Regulation and Compliance* 10 (3): 266-278.

Lampe, J. C. and D. W. Finn. 1992. Reply. *Auditing: A Journal of Practice and Theory* 11 (Supplement): 68-73.

Libby, R. 1985. Availability and the generation of hypotheses in analytical Review. *Journal of Accounting Research* 23 (Autumn): 648–667.

Libby, R. and J. Luft. 1993. Determinants of judgment performance in accounting settings: Ability, knowledge, motivation, and environment. *Accounting, Organizations and Society* 18 (5): 425– 450.

Loebbecke, J. K., M. M. Eining, and J. J. Willingham. 1989. auditors' experience with material irregularities: Frequency, nature and delectability. *Auditing: A Journal of Practice & Theory* 9 (1): 1-28.

Margheim, L. and W. Label. 1990. External auditor reliance on internal auditors when audit risk is high: Some empirical findings, *Advances in Accounting*, 8: 293-311.

Maury, M.: 2000. A circle of influence: Are all the stakeholders included? *Journal of Business Ethics* 23 (1): 117-121.

Mautz, R. K. and H. A. Sharaf. 1961. *The Philosophy of Auditing*, American Accounting Association: Evanston, IL.

Munter, P. and T. A. Ratcliffe. 1998. Auditor's responsibilities for detection of fraud. *National Public Accountant* 43 (6): 37-43.

Nelson, M. W. 2009. A model and literature review of professional skepticism in auditing. *Auditing: A Journal of Practice & Theory* 28 (2): 1-34.

Owhoso, V. 2002. Mitigating gender-specific superior ethical sensitivity when assessing the likelihood of fraud risk. *Journal of Managerial Issues* 14 (3): 360-374.

Phillips, T. J., S. B. Scofield and C. D. Bailey. 2004. An empirical reanalysis of the selection/socialization hypothesis: A research note. *Accounting Organizations and Societ*y 29 (5): 543-563.

Pincus, K. V. 1990. Auditor individual differences and fairness of presentation judgments. *Auditing: A Journal of Practice & Theory* 9 (Fall): 150–166.

Ponemon, L. A. 1992. Ethical reasoning and selection-socialization in accounting. *Accounting, Organizations and Society* 17 (3–4): 239–258.

Ponemon, L. A. 1993. The influence of ethical reasoning on auditors' perceptions of management's competence and integrity, *Advances in Accounting*, 11: 1-29.

Reckers, P. M. J. and B. Wong-on-Wing. 1991. Management's Motive and Its Effect on Selected Audit Decisions, *Behavioral Research in Accounting*, 3: 66-84.

Rest, J. 1986. *Moral Development: Advances in Research and Theory*. Praeger Publishers: Westport, CN.

Rest, J. 1979a. *Development in Judging Moral Issues*. University of Minnesota Press: Minneapolis, MN.

Rest, J. R. 1979b. *Defining Issues Test*, University of Minnesota Press: Minneapolis, MN.

Rest, J. and D. F. Narváez. 1994. *Moral Development in the Professions: Psychology and Applied Ethics*. Lawrence Erbaum Associates: Hillsdale, NJ.

Schroeder, R. G. and K. Verreault. 1987. An empirical analysis of audit withdrawal decisions, *Advances in Accounting*, 5: 205-220.

Shaub, M. 1994. An Analysis of the Association of Traditional Demographic Variables with Moral Reasoning of Auditing Students and Auditors. *Journal of Accounting Education* 12 (1): 1-26.

Shaub, M. K. and J. E. Lawrence. 2002. A taxonomy of auditors' professional skepticism. *Research on Accounting Ethics* 8: 167–194.

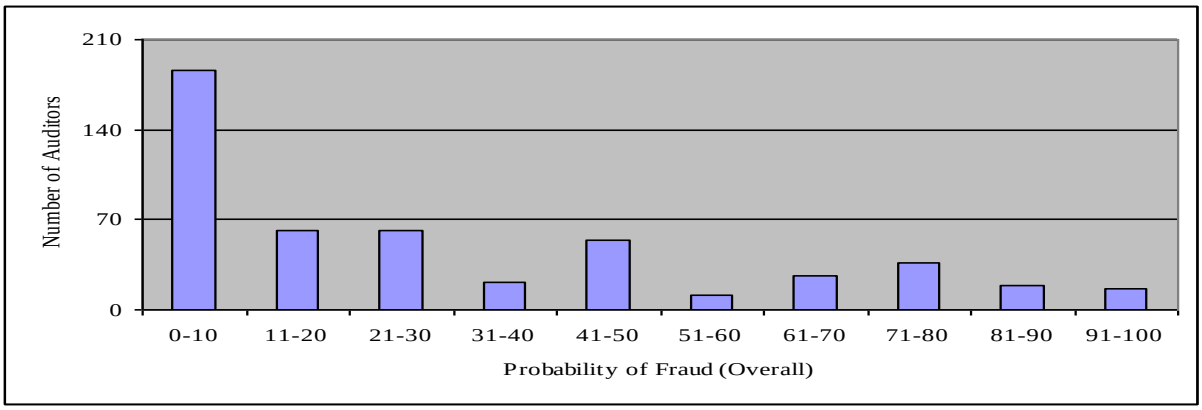
Shelton, S. W. 1999. the effect of experience on the use of irrelevant evidence in auditor judgment. *The Accounting Review* 74 (2): 217–224.

Sweeney, J. 1995. The Moral Expertise of Auditors: An Exploratory Analysis. *Research on Accounting Ethics* 1 (1): 213-234.

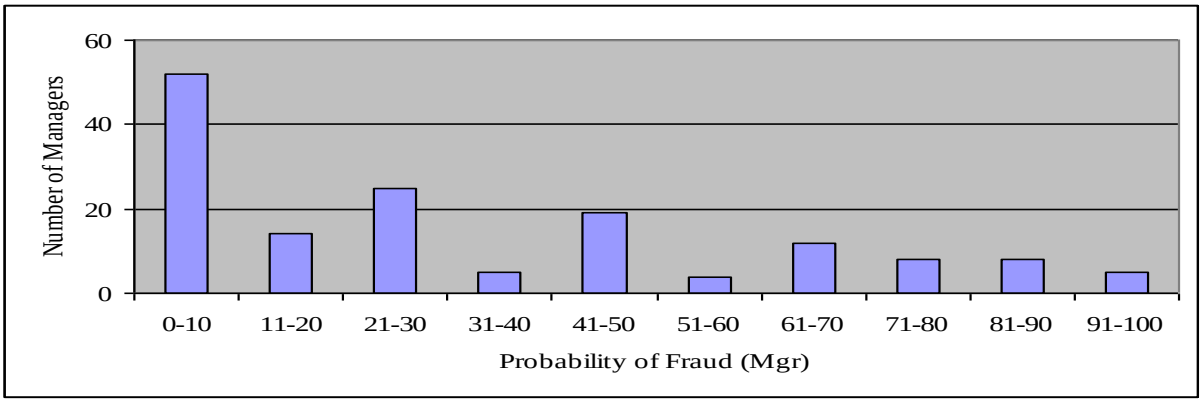
Webber, S. A., B. A. Apostolou, and J. M. Hassell. 2004. Management fraud risk factors: An examination of the self-insight and consensus among forensic experts. *Advances in Accounting Behavioral Research* 7: 75-96.

FIGURE 1
PROBABILITY OF FRAUD ESTIMATES BY STAFF LEVEL

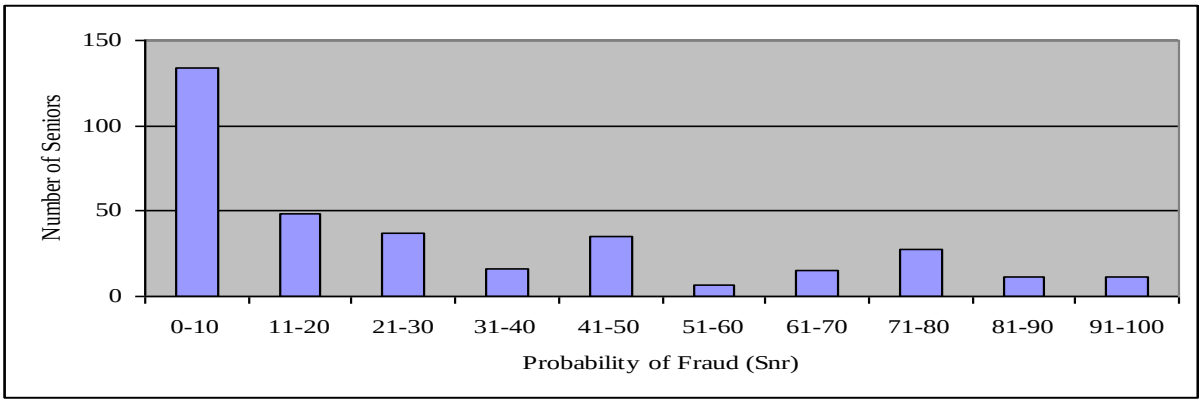
Panel A: Total Sample (n = 494)



Panel B: Managers (n = 152)



Panel C: Seniors (n = 342)



Each panel purposely uses a different scale on the vertical axis. We used the '0-10' group as our approximate standard to visually demonstrate the similarity in each group's proportions.

FIGURE 2
PROBABILITY OF FRAUD ESTIMATES BY CLIENT TYPE AND GENDER

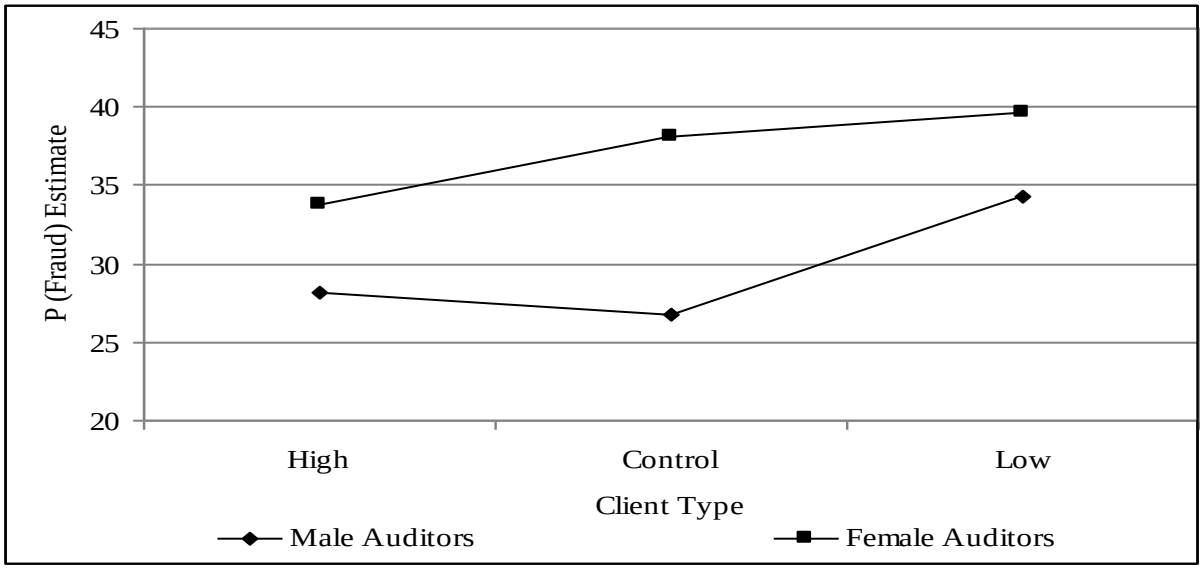


TABLE 1

SAMPLE DEMOGRAPHICS

Panel A: General Data

Overall Data		Managers		Seniors	
Big-6 Firms	5	Sample Size	152	Sample Size	342
Number of Offices	40	Gender mix (%)	72/28	Gender mix (%)	53/47
Total Sample	492	Experience (Yrs)	7.0	Experience (Yrs)	3.7

Panel B: Firm Specific Data by Staff Level and Client Type

	Firm 1	Firm 2	Firm 3	Firm 4	Firm 5	Total
Managers						
High	11	11	10	10	9	51
Control	10	10	10	10	9	49
Low	10	11	10	11	10	52
Total	31	32	30	31	28	152
Seniors						
High	20	20	30	28	18	116
Control	21	21	29	22	17	110
Low	21	21	29	27	18	116
Total	62	62	88	77	53	342
Overall	93	94	118	108	81	494

High	Auditors in the high-integrity client manipulation
Control	Auditors who received no client integrity information
Low	Auditors in the low-integrity client manipulation

TABLE 2

FIRM DIFFERENCES BY STAFF LEVEL

Panel A: Overall firm differences

	Firm 5	Firm 4	Firm 3	Firm 2
Firm 1: P(frd) = 41.6	16.4[tt]	12.8[t]	4.8	11.3[t]
Firm 2: P(frd) = 30.3	5.1	1.5	-6.5	
Firm 3: P(frd) = 36.8	11.6[t]	8.0		
Firm 4: P(frd) = 28.8	3.6			
Firm 5: P(frd) = 25.2				

Panel B: Firm differences for managers

	Firm 5	Firm 4	Firm 3	Firm 2
Firm 1: P(frd) = 40.1	7.4	9.4	-0.1	10.1
Firm 2: P(frd) = 30.0	-2.7	-0.7	-10.2	
Firm 3: P(frd) = 40.2	7.5	9.5		
Firm 4: P(frd) = 30.7	-2.0			
Firm 5: P(frd) = 32.7				

Panel C: Firm differences for seniors

	Firm 5	Firm 4	Firm 3	Firm 2
Firm 1: P(frd) = 42.3	21.0[tt]	14.3[t]	6.7	11.8[t]
Firm 2: P(frd) = 30.5	9.2	2.5	-5.1	
Firm 3: P(frd) = 35.6	14.3*****	7.6		
Firm 4: P(frd) = 28.0	6.7			
Firm 5: P(frd) = 21.3				

* 0.10; ** 0.05; [t] 0.01; [tt] 0.005; [$] 0.001
Data indicate the row data subtracted from the column data (i.e., for the overall data: Firm One was 41.6 and Firm Five was 25.2 for a difference of 16.4).

TABLE 3

PROBABILITY OF FRAUD ESTIMATES BY FIRM AND STAFF LEVEL

	Mgr	Snr	Dif/Sig
Firm 1			
Prob (Fraud)	40.1	42.3	-4.3
(Sample)	(31)	(62)	
Firm 2			
Prob (Fraud)	30.0	30.5	-0.5
(Sample)	(11)	(62)	
Firm 3			
Prob (Fraud)	40.2	35.6	4.6
(Sample)	(30)	(88)	
Firm 4			
Prob (Fraud)	30.7	28.0	2.7
(Sample)	(31)	(77)	
Firm 5			
Prob (Fraud)	32.7	21.3	11.4
(Sample)	(28)	(53)	
Overall			
Prob (Fraud)	34.7	32.0	2.7
(Sample)	(152)	(342)	

Dif – Difference between managers' fraud estimates and seniors' fraud estimates
Sig – Significance of these differences (if any).
* 0.10; ** 0.05; ^{t} 0.01; ^{tt} 0.005; $^{\$}$ 0.001

TABLE 4

PROBABILITY OF FRAUD ESTIMATES BY FIRM, CLIENT TYPE, AND STAFF LEVEL

	High Integrity Group			No-Information Group			Low-Integrity Group		
	Mgrs	Snrs	Dif/Sig	Mgrs	Snrs	Dif/Sig	Mgrs	Snrs	Dif/Sig
Firm 1									
Prob (Fraud)	29.5	33.8	-4.3	43.3	46.6	-3.3	49.0	46.2	2.8
(Sample)	(11)	(20)		(10)	(21)		(10)	(21)	
Firm 2									
Prob (Fraud)	32.9	28.6	4.3	13.7	32.1	-18.4	41.8	30.7	11.1****
(Sample)	(11)	(20)		(10)	(21)		(11)	(21)	
Firm 3									
Prob (Fraud)	42.1	34.1	8.4	29.0	30.1	-1.1	49.0	45.1	3.9
(Sample)	(10)	(30)		(10)	(29)		(10)	(29)	
Firm 4									
Prob (Fraud)	32.6	25.4	7.2	35.6	29.5	6.1	24.5	30.2	-5.6
(Sample)	(10)	(28)		(10)	(22)		(11)	(27)	
Firm 5									
Prob (Fraud)	34.0	21.6	12.4	29.3	19.9	9.4	34.5	22.4	12.1****
(Sample)	(9)	(18)		(9)	(17)		(10)	(18)	
Overall									
Prob (Fraud)	34.2	28.6	5.6	30.1	31.9	-1.8	39.5	35.3	4.2
(Sample)	(51)	(116)		(49)	(110)		(52)	(116)	

Dif – Difference between managers' fraud estimates and seniors' fraud estimates / Sig – Significance of these differences (if any).
* 0.10; ** 0.05; [t] 0.01; [tt] 0.005; [$] 0.001

TABLE 5

PROBABILITY OF FRAUD ESTIMATES BY FIRM AND GENDER

	Men	Women	Dif/Sig
Firm 1			
Prob (Fraud)	44.0	39.1	4.9
(Sample)	(48)	(45)	
Firm 2			
Prob (Fraud)	25.8	37.6	-11.8**
(Sample)	(58)	(36)	
Firm 3			
Prob (Fraud)	31.9	43.2	-11.4**
(Sample)	(67)	(51)	
Firm 4			
Prob (Fraud)	27.4	32.3	-4.9
(Sample)	(64)	(44)	
Firm 5			
Prob (Fraud)	21.1	33.1	12.0**
(Sample)	(53)	(28)	
Overall			
Prob (Fraud)	29.7	37.2	-7.5$
(Sample)	(152)	(342)	

Dif – Difference between males' fraud estimates and females' fraud estimates
Sig – Significance of these differences (if any).
* 0.10; ** 0.05; t 0.01; tt 0.005; $ 0.001

TABLE 6

PROBABILITY OF FRAUD ESTIMATES BY CLIENT TYPE, FIRM AND GENDER

	High Integrity Group			No-Information Group			Low-Integrity Group		
	Men	Women	Dif/Sig	Men	Women	Dif/Sig	Men	Women	Dif/Sig
Firm 1									
Prob (Fraud)	33.4	30.8	2.6	50.6	39.9	10.7	50.0	44.7	5.3
(Sample)	(18)	(13)		(16)	(15)		(14)	(17)	
Firm 2									
Prob (Fraud)	27.2	34.2	-7.0**	18.6	38.2	-19.6^{t}	31.1	41.1	-10.0*
(Sample)	(18)	(13)		(19)	(12)		(21)	(11)	
Firm 3									
Prob (Fraud)	29.0	47.5	-18.5**	26.0	34.7	-8.7**	42.5	47.5	-5.0
(Sample)	(26)	(14)		(22)	(17)		(19)	(20)	
Firm 4									
Prob (Fraud)	27.1	30.3	-3.2	22.7	48.2	-25.5**	27.1	30.3	-3.2
(Sample)	(21)	(17)		(21)	(11)		(21)	(17)	
Firm 5									
Prob (Fraud)	18.6	42.5	-23.9^{tt}	19.1	29.6	-10.5**	24.4	29.0	-4.6
(Sample)	(19)	(8)		(16)	(10)		(18)	(10)	
Overall									
Prob (Fraud)	28.2	33.7	-5.5^{tt}	26.8	38.0	-11.2^{t}	34.3	39.6	-5.3*
(Sample)	(103)	(64)		(94)	(65)		(93)	(75)	

Dif – Difference between men's fraud estimates and women's fraud estimates / Sig – Significance of these differences (if any).
* 0.10; ** 0.05; ^{t} 0.01; ^{tt} 0.005; $^{\$}$ 0.001

TABLE 7

DEFINING ISSUES TEST DATA BY GENDER

	Managers		Seniors	
Comparison	**Male**	**Female**	**Male**	**Female**
High-Integrity Group				
Mean DIT	35.9	59.6	41.0	43.5
(Sample size)	(39)	(12)	(64)	(52)
Difference/significance	-23.7[tt]		-2.5	
No-Information Group				
Mean DIT	37.6	44.6	39.1	41.4
(Sample size)	(33)	(16)	(61)	(49)
Difference/significance	-7.0*		-2.3	
Low-Integrity Group				
Mean DIT	39.6	48.6	39.2	42.6
(Sample size)	(38)	(14)	(55)	(61)
Difference/significance	-9.0**		-3.4	
Overall				
Mean DIT	37.7	50.2	39.8	42.5
(Sample size)	(110)	(42)	(180)	162
Difference/significance	-12.5[tt]		-2.7	

* 0.10; ** 0.05; [t] 0.01; [tt] 0.005; [$] 0.001

TABLE 8

DIFFERENCES IN FRAUD ESTIMATES AND DEFINING ISSUES P SCORE BY CLIENT TYPE, FIRM AND GENDER

	High Integrity Group			No-Information Group			Low-Integrity Group		
	Men	Women	Dif/Sig	Men	Women	Dif/Sig	Men	Women	Dif/Sig
Firm 1									
Prob (Fraud)	33.4	30.8	2.6	50.6	39.9	10.7	50.0	44.7	5.3
DIT P score	41.5	40.9	0.6	36.8	43.3	-6.5	48.1	41.6	6.5
Firm 2									
Prob (Fraud)	27.2	34.2	-7.0**	18.6	38.2	-19.6^{t}	31.1	41.1	-10.0*
DIT P score	41.9	53.3	-11.5**	46.1	37.2	8.9	44.3	48.2	-3.9
Firm 3									
Prob (Fraud)	29.0	47.5	-18.5**	26.0	34.7	-8.7**	42.5	47.5	-5.0
DIT P score	36.4	43.4	-7.0*	39.4	39.4	0.0	34.7	43.0	-8.3*
Firm 4									
Prob (Fraud)	27.1	30.3	-3.2	22.7	48.2	-25.5**	27.1	30.3	-3.2
DIT P score	37.3	47.5	-10.2	38.3	47.9	-9.6*	32.5	44.1	-11.4^{t}
Firm 5									
Prob (Fraud)	18.6	42.5	-23.9^{tt}	19.1	29.6	-10.5**	24.4	29.0	-4.6
DIT P score	39.8	48.3	-8.5	30.4	44.7	-14.3**	39.8	43.0	-3.2
Overall									
Prob (Fraud)	28.2	33.7	-5.5^{tt}	26.8	38.0	-11.2^{t}	34.3	39.6	-5.3*
DIT P score	39.1	46.6	-7.5^{tt}	38.5	42.2	-3.7*	39.4	43.7	-4.3**

Dif – Difference between men and women / Sig – Significance of these differences (if any).
* 0.10; ** 0.05; ^{t} 0.01; ^{tt} 0.005; $^{\$}$ 0.001

TABLE 9

FIRM DIFFERENCES BY STAFF LEVEL

	F1 = 41.6	F2 = 30.3	F3 = 36.8	F4 = 28.8	F5 = 25.2
Panel A: Firm One Combinations (1 of 12 = 8.3 percent)					
1&2 = 36.0	-	-	-0.8	7.2	10.8
1&3 = 38.8	-	8.5	-	10.0	-13.6[t]
1&4 = 34.5	-	4.2	-2.3	-	9.3
1&5 = 34.0	-	3.7	-2.8	5.2	-
Panel B: Firm Two Combinations (2 of 12 = 16.7 percent)					
	F1 = 41.6	F2 = 30.3	F3 = 36.8	F4 = 28.8	F5 = 25.2
2&1 = 36.0	-	-	-0.8	7.2	10.8
2&3 = 34.1	-7.5	-	-	5.3	8.9
2&4 = 29.5	-12.6[t]	-	-7.3	-	4.3
2&5 = 27.9	-13.7[tt]	-	-8.9	-0.9	-
Panel C: Firm Three Combinations (1 of 12 = 8.3 percent)					
	F1 = 41.6	F2 = 30.3	F3 = 36.8	F4 = 28.8	F5 = 25.2
3&1 = 38.8	-	8.5	-	10.0	13.6[t]
3&2 = 34.1	-7.5	-	-	5.3	8.9
3&4 = 33.1	-8.5	2.8	-	-	7.9
3&5 = 32.4	-9.2	2.1	-	3.6	-
Panel D: Firm Four Combinations (2 of 12 = 16.7 percent)					
	F1 = 41.6	F2 = 30.3	F3 = 36.8	F4 = 28.8	F5 = 25.2
4&1 = 34.5	-	4.2	-2.3	-	9.3
4&2 = 29.5	-12.6[t]	-	-7.3	-	4.3
4&3 = 33.1	-8.5	2.8	-	-	7.9
4&5 = 27.3	-14.3[tt]	3.0	-9.5	-	-
Panel E: Firm Five Combinations (2 of 12 = 16.7 percent)					
	F1 = 41.6	F2 = 30.3	F3 = 36.8	F4 = 28.8	F5 = 25.2
5&1 = 34.0	-	3.7	-2.8	5.2	-
5&2 = 27.9	-13.7[tt]	-	-8.9	-0.9	-
5&3 = 32.4	-9.2	2.1	-	3.6	-
5&4 = 27.3	-14.3[tt]	-3.0	-9.5	-	-

* 0.10; ** 0.05; [t] 0.01; [tt] 0.005; [$] 0.001
Data indicate the row data subtracted from the column data

APPENDIX

Additional Information on Management Given to the "High" and "Low" Integrity Groups

Your firm has a policy of evaluating potential clients in several critical areas prior to accepting a new client. Two of these areas are: (1) management integrity and (2) management competence. Your firm believes that the entire population of potential clients for all accounting firms can be described on a scale from 1 to 20. Your firm's standard for an acceptable client is a rating from 1 to 10 on both dimensions.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

ACCEPTABLE RANGE OF CLIENTS

UNACCEPTABLE RANGE OF CLIENTS

ENTIRE POPULATION OF POTENTIAL CLIENTS

In your firm, this evaluation is an on going process for all clients. Clients who do not maintain a rating within the acceptable range are carefully evaluated for continuation as clients. El Tiovivo's ratings (circled values) have been stable since becoming a client and currently reflect the following evaluations.

Management Integrity

1	2	3	4	5	6	7	8	9	10

Note: This information was only provided to the high integrity group who received ratings of "2" and the low integrity group who received ratings of "8". These ratings were not given to the control group.

From: Bernardi (1997)