

# The Relationship of Audit Committee Characteristics with Endogenously Determined Audit and Non-Audit Fees

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*The Securities and Exchange Commission and Congress expect audit committees to monitor the economic ties between management and the external auditor. We examine the association between the fees paid to the external auditor and effective audit committees. We find that variables proxying for the effectiveness of audit committees are positively associated with audit fees. These results suggest that effective audit committees positively influence the level of audit coverage. Our initial results also suggest that effective audit committees seek to increase audit quality by reducing the non-audit services provided by the external auditor. Once we model the non-audit fees endogenously, however, our results show that there is no statistically significant association between the non-audit fees and audit committee effectiveness.*

## Introduction

In recent years, Congress and the Securities and Exchange Commission (SEC) have taken proactive steps imposing new responsibilities on audit committees with a view toward protecting the investing public's interests. Some of the new duties are in response to concerns about a growing trend of revenues derived by the big accounting firms from non-audit services. In 1999, the SEC passed rules requiring companies to state in their proxy statements that the audit committee considered

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whether the provision of non-audit services by the external auditor compromised auditor independence. In 2000, the SEC issued rules requiring the disclosure of non-audit and audit fees in proxy statements. In early 2001, the SEC sent letters to chairpersons of audit committees reminding them of their duties under the new rules.<sup>1</sup> In July 2002, Congress passed the Sarbanes-Oxley Act, followed by SEC rules, which require audit committees to be directly responsible for the audit fees paid to external auditors. The Act and the SEC rules prohibit auditors from providing certain non-audit services while requiring audit committees to pre-approve permitted non-audit services.

While previous studies have examined relationships between audit committee characteristics and auditor dismissals following new going concern reports (Carcello and Neal, 2003), auditor resignations (Lee *et al.*, 2004), discretionary accruals (Klein, 2002), and financial misstatements (Abbott *et al.*, 2004), there has been little research examining the association between audit committees and the fees paid to the external auditor. Abbott *et al.* (2003a) find that effective audit committees positively influence audit fees paid to the external auditor. Abbott *et al.* (2003b) is the only paper examining the relationship between non-audit fees and audit committee characteristics. Their results show that effective audit committees reduce the ratio of non-audit fees to audit fees (hereafter non-audit fee ratio) paid to the external auditor.

The above studies ignore the endogenous nature of audit and non-audit fees. Whisenant *et al.* (2003) show that the coefficients and standard errors obtained from the single equation fee models suffer from a significant simultaneous equation bias. Abbott *et al.* (2003a) check for the sensitivity of their test results by modeling audit fees endogenously and state that their single equation results are unaffected. They do not report their results or the models they estimated. We also improve their single equation audit fee model specification by controlling for additional factors shown by recent work to affect audit fees. Finally, there has been no study that has controlled for the endogeneity of the fees when examining the relationship of audit committee characteristics and non-audit fees.

Whisenant *et al.* (2003) show that after controlling for endogeneity, there is no association between audit and non-audit fees. Using a simultaneous equation estimation, however, Antle *et al.* (2002) show that audit and non-audit fees positively influence each other. Both studies do not include audit committee variables in their system of equations. We provide additional evidence on the feedback relationship between the fees and whether the inclusion of audit committee variables affects the association of the fees with each other.

Our results show that the independence and the diligence of members of audit committees are positively related to audit fees. A composite proxy of audit commit-

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<sup>1</sup> See "SEC's Levitt Sends Audit Committees Reminder of New Rules" in [www.accounting.smartpros.com](http://www.accounting.smartpros.com), January 9, 2001. The proxy disclosures of non-audit fees went into effect February 5, 2001.

tee effectiveness based on audit committee independence and diligence used by Abbott *et al.* (2003b) is also positively related to audit fees. These results hold for both single and simultaneous equation estimations. The results on the association of non-audit fees with audit committee characteristics are not clear. We confirm Abbott *et al.*'s (2003b) result showing that the composite proxy for audit committee effectiveness is negatively related to the non-audit fee ratio. The inverse relation with non-audit fees only holds in the single-equation estimations, however. When audit and non-audit fees are modeled jointly, we find that the composite proxy is not related to non-audit services. Additional tests examining the separate association of independence, diligence, and expertise with non-audit fees show that the association is also statistically significant only in the single equation estimations. Our results suggest that single-equation estimations of non-audit fees with audit committee characteristics suffer from a significant simultaneous equation bias. Specifically, ignoring the feedback relationships between the fees results in a spurious inverse association of audit committee effectiveness with non-audit fees. Finally, we find that non-audit and audit fees are positively related to each other in the single equation estimations. When modeled jointly we find that there is no significant statistical association between the fees.

## Background and Hypotheses Development

Several studies document a positive association between audit and non-audit fees. Simunic (1984), among others, finds that firms purchasing more non-audit services from their external auditors also pay higher audit fees. They conclude that there are knowledge spillovers from non-audit to audit services. Craswell (1999), among others, finds that high audit fees lead to high non-audit fees. They suggest that knowledge spillovers also occur from audit to non-audit services. These studies use single equation models of audit and non-audit fees.

Whisenant *et al.* (2003), however, argue audit and non-audit fees are jointly determined. They show that the single equation estimations of auditor fees suffer from a significant simultaneous equation bias and that after controlling for the endogeneity of audit and non-audit fees, there are no knowledge spillovers across the two services. Antle *et al.* (2002) also use a simultaneous equation system to model audit and non-audit fees. They find that audit and non-audit fees positively influence each other. Whisenant *et al.* (2003) argue that Antle *et al.*'s (2002) results are difficult to interpret because their system of equations excludes several variables shown by previous research to affect audit and non-audit fees and, therefore, is misspecified. Whisenant *et al.* (2003), however, do not include audit committee characteristics in their estimations of audit and non-audit services. If audit committees determine jointly the level of both audit and non-audit fees, the models estimated by Whisenant *et al.* (2003) also are prone to misspecification error.

Our study provides evidence on the relationship between audit committee characteristics and the fees paid to the external auditor. One of the most important duties of audit committees is to set the external auditors' compensation. There have been only a few studies examining the relationship of characteristics of audit committees with audit and non-audit fees; what little has been done generally has ignored the endogenous nature of audit and non-audit fees.

Abbott *et al.* (2003a) examine the relationship between log audit fees and audit committee independence, number of audit committee meetings, and the expertise of audit committee members for 262 firms filing proxies between February 5, 2001 and March 23, 2001 and 250 randomly chosen firms filing proxies between March 24, 2001 and June 30, 2001. Their results show that audit committee independence and expertise (but not number of meetings) are statistically significantly related to the log audit fees. Their findings are consistent with the notion that effective audit committees positively influence the level of audit coverage leading to higher audit fees.

Abbott *et al.* (2003b) is the only study we are aware of that has examined the empirical relationship between non-audit fees (relative to audit fees) and audit committee characteristics. Their sample consists of 538 firms filing proxies between February 5, 2001 and June 30, 2001. They find that the non-audit to audit fee ratio is related negatively and statistically significantly to a composite measure of audit committee effectiveness based on audit committee independence and activity. They argue that effective audit committees seek to enhance actual or perceived auditor independence by reducing the non-audit services provided by the external auditor.

Abbott *et al.* (2003a) and Abbott *et al.* (2003b) find that once audit committee variables are included, board characteristics do not influence audit and non-audit fees, respectively. Their results suggest that boards of directors delegate to audit committees the task of setting auditor compensation.

## Methodological Issues

Abbott *et al.* (2003a) use single-equation audit fee models that do not consider that audit fees are jointly determined with non-audit fees.<sup>2</sup> They do not include non-audit fees as an independent variable in their single-equation audit fee estimations. To the extent that audit and non-audit fees are jointly determined, their estimations could suffer from a simultaneous equation bias affecting all their estimated coefficients as well as the associated standard errors. In general, single equation estimations tend to understate standard errors or overstate t-values (Maddala, 1991).

The use of the non-audit fee ratio by Abbott *et al.* (2003b) to examine the relationship between audit committee characteristics and non-audit fees is also

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<sup>2</sup> Abbott *et al.* (2003a) state that they check for the impact of endogeneity in their sensitivity tests, but their reported results are based on single equation models. They also fail to include in their single equation audit fee model several factors shown by prior work to affect audit fees.

subject to the same criticism: the non-audit fee ratio does take into account the endogeneity of audit and non-audit fees. Second, Antle *et al.* (2002) argue that the non-audit fee ratio is affected by both non-audit and audit fees and, therefore, drawing conclusions about associations with only the non-audit fees is questionable. Third, Chung and Kallapur (2003) argue that the non-audit fee ratio is not a good proxy for the economic bonding of auditor with client. The ratio incorrectly suggests that there will be equal bonding when audit fees and non-audit fees are, say, \$50,000 each and when they are, say, \$1 million each.

We are interested in examining whether the methodological issues relating to the endogeneity and the use of the non-audit fee ratio impact the association of the fees with audit committee characteristics. Our tests use the natural log of the level of non-audit fees to proxy for the scope of non-audit services instead of the non-audit fee ratio for the following reasons. First, using the non-audit fees in the levels, we are able to model their endogeneity which allows us to examine the extent of simultaneous equation bias present in single equation non-audit fee models.<sup>3</sup> Second, we wish to replicate Whisenant *et al.*'s (2003) research design and verify that we are able to obtain their main results, thus, increasing our confidence about the effect of the simultaneous equation bias on the coefficients of the audit committee variables included in our models. We form three hypotheses stated in the null form:

### Hypotheses

- H01: There is no association between non-audit services purchased from the external auditor and measures of effective audit committees.
- H02: There is no association between audit services purchased from the external auditor and measures of effective audit committees.
- H03: There is no association between audit services and non-audit services purchased from the external auditor.

## Data and Research Design

### Sample Selection

Since February 5, 2001 the SEC has required disclosures about audit and non-audit fees in proxy statements. Our sample is drawn from the Investor Responsibility Research Center's (IRRC) database consisting of all firms on the S&P 1500 and about 200 other large firms that IRRC considers to be of interest to market partici-

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<sup>3</sup> While we argue that the non-audit fee ratio suffers from some drawbacks, we have not demonstrated that the log of the level of non-audit fees is the best proxy for measuring the extent of bonding that can occur between auditor and client due to non-audit services. While there may be better proxies available, using the level of non-audit fees we are able to correct the problems indicated in the paragraph above that are associated with the use of the non-audit fee ratio.

pants. Antle *et al.* (2002) also use IRRC's database to obtain non-audit and audit fee data. To facilitate the extensive data collection necessary for our tests, we choose firms whose fiscal year ended December 31, 2000. Even with this restriction our sample is the largest yet to examine the relation of audit committee characteristics with the fees paid to the external auditor. Similar to prior work (Whisenant *et al.*, 2003), we eliminated firms belonging to the financial services industry. We required the selected firms to have all financial and stock market data used in our tests to be available on Compustat and CRSP. This gave us a sample of 792 firms for which we had complete financial statement and stock market data. Of these, all but 12 firms were audited by Big 5 auditors. We eliminated the non-Big 5 client firms from our sample because of prior research showing that these firms are likely to be considerably different from Big 5 client firms (DeAngelo, 1981; Palmrose, 1988; Francis *et al.*, 1999), leaving us with a final sample of 780 firms.<sup>4</sup>

## Description of Variables

### Audit and Non-Audit Services

The audit and non-audit fees proxy for the scope of services provided by the external auditor. We use the non-audit to audit fee ratio (NAFRATIO) which proxies for the scope of non-audit services relative to audit services. We also use NONAUFEE and AUFEE which are defined as the natural log of non-audit fees and the natural log of audit fees, respectively.

### Audit Committee Characteristics

Outside members on audit committees are more independent of management than inside and gray members. Therefore, as the proportion of outside members increases, we expect the effectiveness of audit committees to increase. For the same reason, we expect the effectiveness of its audit committee to decrease when an influential insider, such as the CEO, is the chairperson of the board. We define ACINDEP as the percentage of outside members on audit committees. The number of meetings held by its audit committee (ACMEET) proxies for the diligence with which the audit committees discharge their duties. The more times the audit committees meet, the more effective they are likely to be.<sup>5</sup> Abbott *et al.* (2003b) use a composite measure of audit committee effectiveness (ACEFF) based on independence and diligence. Similar to those authors, ACEFF is defined by an indicator variable which is one if an audit committee is fully independent and meets at least four times a year (zero

<sup>4</sup> Chaney *et al.* (2004) find that Big 5 auditors self-select themselves into clients paying high audit fees. Eliminating non-Big 5 client firms also mitigates concerns about biases in estimated coefficients due to this self-selection problem.

<sup>5</sup> As an additional proxy for diligence we also use a dummy variable, *ACATTEND*, which takes a value of 1 when all the members of the audit committee attend more than 75 percent of the meetings held.

otherwise). The composite proxy captures the interaction between independence and diligence and potentially could provide greater explanatory power than each of the attributes forming the composite proxy. Finally, for audit committees to discharge their duties effectively, its members must also possess the expertise to understand financial statements and audit processes. While there are several ways to define expertise, we define audit committee expertise, ACEXPRT, using a proportion of audit committee members who are financial experts.<sup>6</sup>

### Control Variables

We control for factors (CNTRL) found by previous work to affect the demand and supply of both audit and non-audit services. These factors relate to firm characteristics such as the magnitude of agency costs, profitability, stock market performance, audit risk, complexity of operations, size, growth, and certain auditor characteristics (Frankel *et al.*, 2002 and Whisenant *et al.*, 2003). To control for agency costs, we use firm-leverage (LEV). Institutional holders reduce agency costs through effective monitoring. Therefore, we include the percentage of shares held by institutions (INSHOLD). As measures of firm profitability we use the return on assets (ROA) defined as operating income divided by total assets, as well as a dummy variable (DLOSS) taking a value of one when a firm has sustained a loss and zero otherwise. As measures of stock market performance, we include the compounded annual CRSP daily returns (ANRET) and the variance of daily returns (VOLATIL). As proxies for business complexity and audit risk, we include:

- 1) Inventory plus accounts receivable as a percentage of total assets at the end of fiscal year 2000 (INVREC),
- 2) The square root of the number of segments (SEGNUM),
- 3) An indicator variable which is one when the firm has foreign operation (DFOR) and zero otherwise,
- 4) An indicator variable equal to one if the firm has a pension or post-retirement plan (BENEFIT) and zero otherwise,
- 5) The square root of the number of employees (EMPLS),
- 6) An indicator variable equal to one if the firm restated their earnings (RESTATE) and zero otherwise,
- 7) The liquidity ratio (LIQ) measured as the ratio of current assets to current liabilities,
- 8) The auditor's opinion (AUOP) measured an indicator variable equal to one if the firm received non-unqualified opinion and zero otherwise,

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<sup>6</sup> Consistent with BRC (1999) and Beasley and Salterio (2001), we consider directors, who are the president, chief executive officer, board chairperson, treasurer, and chief financial officer in other firms, as senior executives who have accounting or related financial management knowledge and experience.

- 9) An indicator variable which is one if the firm reported extraordinary or discontinued operations and zero otherwise (DEXOR), and
- 10) The one-year change in Zmijewski's (1984) score denoting the probability of bankruptcy (CBANKCY).

To control for firm size and growth, we include the log of total assets (SIZE), sales growth (GRSALES), and the book to market ratio (BTM). To control for contracting costs between the auditor and the firm, we include an indicator variable equal to one if audit engagement is in the first or second year and 0 otherwise (DAUTEN).

Finally, our control variables include determinants that are unique to audit and non-audit pricing. Reporting lag (REPLAG) defined as the number of days between current fiscal year-end and earnings announcement date has been found to affect only audit fees and, therefore, is excluded from the non-audit fee model, while new financing issues (ISSUE), defined as a dummy variable taking value one (zero otherwise) if the issuances of equity in either the current or subsequent fiscal year exceed \$50 million, is not included in the audit fee model because it has been shown to only affect non-audit pricing (Whisenant *et al.*, 2003).

### Models Estimated

We report the results of single equation models estimated using ordinary least squares (OLS) and the simultaneous equation models estimated using two-stage least squares (2SLS).<sup>7</sup>

#### Non-Audit Fee Models:

$$\text{NAFRATIO}_i = \alpha_0 + \gamma_1 \text{ACEFF}_i (\text{OR ACINDEP}_i, \text{ACMEET}_{i,}) + \gamma_2 \text{ACEXPERT}_i \\ + \sum_k \beta_k \text{CNTRL}_{ki} + \sum_k \beta_k \text{INDUSTRY}_{ki} + \varepsilon_i$$

and

$$\text{NONAUFEE}_i = \alpha_0 + \gamma_1 \text{ACEFF}_i (\text{OR ACINDEP}_i, \text{ACMEET}_{i,}) \\ + \gamma_2 \text{ACEXPERT}_i + \omega_1 \text{AUFEE}_i + \sum_k \beta_k \text{CNTRL}_{ki} + \sum_k \beta_k \text{INDUSTRY}_{ki} + \varepsilon_i$$

#### Audit Fee Model:

$$\text{AUFEE}_i = \alpha_0 + \gamma_1 \text{ACEFF}_i (\text{OR ACINDEP}_i, \text{ACMEET}_{i,}) + \gamma_2 \text{ACEXPERT}_i \\ + \omega_1 \text{NONAUFEE}_i + \sum_k \beta_k \text{CNTRL}_{ki} + \sum_k \beta_k \text{INDUSTRY}_{ki} + \varepsilon_i$$

All variables in the regression are as defined previously. A positive coefficient,  $\omega_1$ , in the audit fee and non-audit fee models would suggest that there are knowledge spillovers between non-audit and audit services, and vice-versa. If effective audit

<sup>7</sup> We obtain virtually similar results using 3SLS.

committees perceive non-audit fees as increasing economic bonding between management and the external auditor, we should expect the coefficients on ACEFF, ACINDEP, ACMEET, and ACEXPRT in the non-audit fee models to be negative and statistically significant. Finally, if effective audit committees positively influence audit coverage, we should expect those coefficients to be positive and statistically significant in the audit fee model.

## Empirical Results

Table 1, Panel A depicts our sample selection process. Table 1, Panel B shows the sample distribution by industry. Consistent with Frankel et al. (2002) and other work examining auditor fees, our firms represent a wide range of industries, with about 40 percent coming from durable manufacturers and computers.

**Table 1—Sample Description**

Panel A: Procedures Used For Data Collection

| Procedures                                                   | N     |
|--------------------------------------------------------------|-------|
| S&P Super 1500 and IRRC Large Firms                          |       |
| with December 2000 Fiscal Year End That Disclosed Proxy Data | 1,104 |
| Excluding Financial Institutions                             | 907   |
| Data Available on Compustat                                  | 802   |
| Data Available on CRSP                                       | 792   |
| Excluding Non-Big 5 clients                                  | 780   |

Panel B: Distribution of Observations by Industry

| Industry                    | Number of Firms | Percent of Sample | Mean Audit Fees | Mean Non-Audit Fees |
|-----------------------------|-----------------|-------------------|-----------------|---------------------|
| Agriculture                 | 3               | 0.38              | 737,844         | 2,269,217           |
| Mining/Construction         | 14              | 1.79              | 445,701         | 531,422             |
| Food                        | 17              | 2.18              | 1,552,930       | 3,387,656           |
| Textile/Printing/Publishing | 56              | 7.18              | 979,268         | 2,324,358           |
| Chemical                    | 34              | 4.36              | 1,433,870       | 2,875,226           |
| Pharmaceutical              | 43              | 5.51              | 1,152,152       | 3,035,167           |
| Extractive                  | 33              | 4.23              | 709,494         | 1,137,950           |
| Durable Manufacturers       | 194             | 24.87             | 1,161,810       | 2,439,718           |
| Transportation              | 68              | 8.72              | 736,379         | 2,654,694           |
| Utilities                   | 67              | 8.59              | 1,860,822       | 3,509,315           |
| Retail                      | 64              | 8.21              | 648,573         | 1,230,862           |
| Services                    | 69              | 8.85              | 819,898         | 2,491,064           |
| Computer                    | 116             | 14.87             | 834,149         | 1,833,360           |
| Others                      | 2               | 0.26              | 516,000         | 404,000             |
| Totals                      | 780             | 100               |                 |                     |

Agriculture (0100-0999), Mining/Construction (1000-1999, excluding 1300-1399), Food (2000-2111), Textile/Printing/Publishing (2200-2799), Chemicals (2800-2824, 2840-2899), Pharmaceuticals (2830-2836), Extractive (2900-2999, 1300-1399), Durable manufacturers (3000-3999, excluding 3570-3579 and 3670-3679), Transportation (4000-4899), Utilities (4900-4999), Retail (5000-5999), Services (7000-8999, excluding 7370-7379), Computers (7370-7379, 3570-3579, 3670-3679), Other (2112-2199, 2837-2839, 2825-2829)

**Table 2—Descriptive Statistics on Variables Used, N = 780**

| Panel A: Audit, Financial Information and Systems and Other Non-Audit Fees          |            |             |                |            |                |
|-------------------------------------------------------------------------------------|------------|-------------|----------------|------------|----------------|
| Description                                                                         | Mean       | Std. Dev.   | First Quartile | Median     | Third Quartile |
| Audit Fees                                                                          | 1,035,147  | 2,180,086   | 252,215        | 501,780    | 1,045,357      |
| Financial Information Fees                                                          | 311,200    | 2,137,989   | 0              | 0          | 0              |
| Other Non-Audit Fees                                                                | 2,023,299  | 3,924,017   | 249,008        | 714,543    | 2,100,000      |
| (Financial Information Fees+<br>Other Non-Audit Fees) / Audit Fees                  | 2.19       | 2.16        | 0.87           | 1.61       | 2.77           |
| Financial Information Fees/Audit Fees                                               | 0.24       | 1.27        | 0.00           | 0.00       | 0.00           |
| Panel B: Independence, Diligence and Financial Expertise of Audit Committee Members |            |             |                |            |                |
| Variables                                                                           | Mean       | Std. Dev.   | First Quartile | Median     | Third Quartile |
| ACEFF                                                                               | 0.5051     | 0.5003      | 0.0000         | 1.0000     | 1.0000         |
| ACINDEP                                                                             | 0.9253     | 0.1686      | 1.0000         | 1.0000     | 1.0000         |
| ACMEET                                                                              | 4.2282     | 1.7998      | 3.0000         | 4.0000     | 5.0000         |
| ACEXPRT                                                                             | 0.3980     | 0.2731      | 0.2500         | 0.3333     | 0.6667         |
| Firms with 100 Percent Independent Audit Committee: 70.51 Percent                   |            |             |                |            |                |
| Panel C: Control Variables                                                          |            |             |                |            |                |
| Variables                                                                           | Mean       | Std. Dev.   | First Quartile | Median     | Third Quartile |
| Total Assets (\$millions)                                                           | 4,751.4995 | 10,875.8433 | 494.2340       | 1,310.6630 | 3,926.6630     |
| SIZE                                                                                | 7.3249     | 1.4530      | 6.2030         | 7.1783     | 8.2755         |
| SEGNUM                                                                              | 1.5790     | 0.5474      | 1.0000         | 1.7321     | 2.0000         |
| EMPLS                                                                               | 0.0961     | 0.0845      | 0.0418         | 0.0722     | 0.1198         |
| LEV                                                                                 | 0.2639     | 0.1995      | 0.0948         | 0.2681     | 0.3863         |
| LIQ                                                                                 | 2.6138     | 3.8055      | 1.0807         | 1.6918     | 2.8202         |
| INVREC                                                                              | 0.2456     | 0.1679      | 0.1022         | 0.2217     | 0.3505         |
| ROA                                                                                 | 0.0837     | 0.1346      | 0.0488         | 0.0902     | 0.1440         |
| INSHOLD                                                                             | 57.2785    | 21.7729     | 43.1000        | 60.9000    | 74.5500        |
| DAUTEN                                                                              | 0.0846     | 0.2785      | 0.0000         | 0.0000     | 0.0000         |
| DFOR                                                                                | 0.6115     | 0.4877      | 0.0000         | 1.0000     | 1.0000         |
| DLOSS                                                                               | 0.2013     | 0.4012      | 0.0000         | 0.0000     | 0.0000         |
| GRSALES                                                                             | 0.4186     | 1.1506      | 0.0429         | 0.1432     | 0.4024         |
| AUOP                                                                                | 0.1731     | 0.3786      | 0.0000         | 0.0000     | 0.0000         |
| BENEFIT                                                                             | 0.6756     | 0.4684      | 0.0000         | 1.0000     | 1.0000         |
| BTM                                                                                 | 0.6096     | 0.9783      | 0.2380         | 0.4217     | 0.7133         |
| DEXOR                                                                               | 0.0846     | 0.2785      | 0.0000         | 0.0000     | 0.0000         |
| CBANKCY                                                                             | 7.4031     | 140.9206    | -10.9699       | -0.2499    | 8.8623         |
| RESTATE                                                                             | 0.0795     | 0.2707      | 0.0000         | 0.0000     | 0.0000         |
| ANRET                                                                               | 0.1309     | 0.5731      | -0.2473        | 0.1530     | 0.4530         |
| VOLATIL                                                                             | 0.0019     | 0.0018      | 0.0007         | 0.0012     | 0.0024         |
| ISSUE                                                                               | 0.3321     | 0.4713      | 0.0000         | 0.0000     | 1.0000         |
| REPLAG                                                                              | 34.6410    | 14.5721     | 24.0000        | 31.0000    | 44.0000        |

Table 2, Panel A summarizes data on audit and non-audit fees. Table 2 shows that the mean (median) audit fees are \$1,035,147 (\$501,780), while the corresponding amount for non-audit fees, excluding financial information systems fees, is \$2,023,299 (\$714,543). The mean (median) financial information systems and design fees included in non-audit fees are only \$311,200 (0). Systems fees are zero for 86.4 percent of the firms. It is interesting that systems fees and services were the subject of so much controversy. Accounting firms in the months prior to

**Variable Definitions Used in the Tables**

|         |                                                                                                                                                      |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| ACEFF   | = An indicator variable which is one if an audit committee is fully independent and meets at least four times a year (zero otherwise)                |
| ACINDEP | = Proportion of independent members on an audit committee                                                                                            |
| ACMEET  | = Number of audit committee meetings during the year                                                                                                 |
| ACEXPRT | = Proportion of audit committee members who are financial experts                                                                                    |
| SIZE    | = Natural logarithm of total assets (in millions)                                                                                                    |
| SEGNUM  | = Square root of the number of segments                                                                                                              |
| EMPLS   | = Square root of the number of employees (in thousands)                                                                                              |
| LEV     | = Total debt over total assets                                                                                                                       |
| LIQ     | = Ratio of current assets divided by current liabilities                                                                                             |
| INVREC  | = Inventory plus accounts receivable, divided by total assets                                                                                        |
| ROA     | = Return on assets, defined as operating income divided by total assets                                                                              |
| INSHOLD | = Percentage of shares held by institutions                                                                                                          |
| DAUTEN  | = Indicator variable which is one for audit engagements in the first or second year (zero otherwise)                                                 |
| DFOR    | = Indicator variable which is one if the firm has foreign sales (zero otherwise)                                                                     |
| DLOSS   | = Indicator variable which is one if the firm reports a loss in any of the two previous fiscal years (zero otherwise)                                |
| GRSALES | = Annual growth rate in sales                                                                                                                        |
| AUOP    | = Indicator variable which is one if the firm did not receive a standard unqualified opinion in the current or previous fiscal year (zero otherwise) |
| BENEFIT | = Indicator variable which is one if the company has a pension or post-retirement plan (zero otherwise)                                              |
| BTM     | = Book-to-market ratio                                                                                                                               |
| DEXOR   | = Indicator variable which is one if the firm reported extraordinary items or discontinued operations (zero otherwise)                               |
| CBANKCY | = One-year change in Zmijewski's (1984) score denoting probability of bankruptcy                                                                     |
| RESTATE | = Indicator variable which is one if the firm restated net income during 1999 or 2000 (zero otherwise)                                               |
| ANRET   | = Annual cumulative stock return                                                                                                                     |
| VOLATIL | = Annual variance of the residual from the market model                                                                                              |
| ISSUE   | = Indicator variable which is one if the firm issued equity greater than \$50 million in the current and the following fiscal year (zero otherwise)  |
| REPLAG  | = Reporting lag, defined as the number of days between current fiscal year-end and the earnings announcement date                                    |

Sarbanes-Oxley (2002) may have decided that it would be in their interest to announce their willingness to accept a ban on information systems services.<sup>8</sup> The mean (median) ratio of non-audit fees to audit fees is 2.19 (1.61), which is similar to what the SEC found in its study of 563 proxy statements in 2001.<sup>9</sup>

Table 2, Panel B contains descriptive data on independence, diligence, and the financial expertise of audit committees. The mean percentage of independent audit committee members is about 93. On average, audit committees meet about four

<sup>8</sup> See "States Consider Measures to Limit Auditors' Services" by Jackie Spinnner in the *Washington Post* dated May 28, 2002.

<sup>9</sup> See "SEC's Unger calls Andersen Fraud Case 'Smoking Gun'" by CFO.com staff, CFO.com, June 25, 2001).

times a year. About 71 percent of audit committees are fully independent and only about 51 percent are fully independent and meet at least four times a year. Finally, 40 percent of audit committees have at least one expert.

Table 2, Panel C presents summary statistics on the control variables used in our regression. Because we focus on the large and the more prominent firms traded on the market, some of our descriptive statistics are worth noting. We find that 61 percent of the firms had foreign sales, 33 percent had issued stock in the current or subsequent fiscal year totaling \$50 million or more, 8 percent had restated their financial statements during 1999 or 2000, 17 percent had not received a standard unqualified opinion, and 20 percent of the firms sustained a loss. The mean institutional holdings were 57 percent, mean leverage was 26 percent, and the mean book to market ratio was 61 percent.<sup>10</sup>

Table 3 presents the results of the single and simultaneous equation estimations used to test the relationship between non-audit fees, audit fees, and the composite measure of audit committee effectiveness (i.e., ACEFF). In column A, we present results showing the association of ACEFF with the non-audit to audit fee ratio (NAFRATIO). The adjusted  $R^2$  of the regression is 0.08. We confirm Abbott *et al.*'s (2003b) results showing that audit committee effectiveness is negatively associated to the non-audit fee ratio. The t-value on the coefficient associated with ACEFF is -2.72 which denotes significance at the one percent level of testing.

Columns B and C, show the results on the association of log non-audit fees with ACEFF using single and simultaneous equation models. The adjusted  $R^2$ s in the single and simultaneous equations increase dramatically to 56 percent and 40 percent, respectively. The single equation estimations show that ACEFF continues to be negatively and statistically significantly associated with the log non-audit fees. The t-value associated with the coefficient on ACEFF is -2.29 indicating significance at the five percent level of testing. Once the endogeneity of the fees is modeled, the results show that that audit committee effectiveness is not statistically significantly related to non-audit fees at all conventional levels of statistical testing (t-value = -0.19).

Columns D and E of Table 3 present the results of the single and simultaneous equation models used to test the relationship between log audit fees and audit committee effectiveness. The adjusted  $R^2$ s in the single and simultaneous estimations are 75 and 74 percent, respectively. The results of both single and simultaneous equation models show that audit committee effectiveness is positively associated with the audit fees. The t-values associated with ACEFF are 3.18 and 2.96, under the single and simultaneous estimations, respectively, which denote significance at the one percent level.

<sup>10</sup> As expected, there is a statistically significant correlation between the measures of profitability ( $\rho(\text{LOSS}, \text{ROA}) = -0.55$ ). There are also significantly large correlations between *AUFEE* and *NONAUFEE* ( $\rho = 0.72$ ) and between *SIZE* and *AUFEE* ( $\rho = 0.75$ ). The correlation table is not reported.

**Table 3—The Relation of the Composite Proxy for Audit Committee Effectiveness with the Non-Audit Fee Ratio, Log Non-Audit Fees and Log Audit Fees, N = 780**

$$(1) \text{NAFRATIO}_i = \alpha_0 + \gamma_1 \text{ACEFF}_i + \gamma_2 \text{ACEXPERT}_i + \sum_k \beta_k \text{CNTRL}_{ki} + \sum_k \beta_k \text{INDUSTRY}_{ki} + \varepsilon_i$$

$$(2) \text{NONAUFEE}_i = \alpha_0 + \gamma_1 \text{ACEFF}_i + \gamma_2 \text{ACEXPERT}_i + \omega_1 \text{AUFEE}_i + \sum_k \beta_k \text{CNTRL}_{ki} + \sum_k \beta_k \text{INDUSTRY}_{ki} + \varepsilon_i$$

$$(3) \text{AUFEE}_i = \alpha_0 + \gamma_1 \text{ACEFF}_i + \gamma_2 \text{ACEXPERT}_i + \omega_1 \text{NONAUFEE}_i + \sum_k \beta_k \text{CNTRL}_{ki} + \sum_k \beta_k \text{INDUSTRY}_{ki} + \varepsilon_i$$

| Variables | A<br>NAFRATIO<br>Sing. Eqn.<br>Coefficients<br>(t-value) | B<br>NONAUFEE<br>Sing. Eqn.<br>Coefficients<br>(t-value) | C<br>NONAUFEE<br>Simul. Eqn.<br>Coefficients<br>(t-value) | D<br>AUFEE<br>Sing. Eqn.<br>Coefficients<br>(t-value) | E<br>AUFEE<br>Simul. Eqn.<br>Coefficients<br>(t-value) |
|-----------|----------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------|
| Intercept | -0.0108<br>(-0.01)                                       | 0.1307<br>(0.17)                                         | 12.8695<br>(1.00)                                         | 7.4031<br>(30.40)***                                  | 7.4589<br>(7.62)***                                    |
| ACEFF     | -0.4137<br>(-2.72)***                                    | -0.1908<br>(-2.29)**                                     | -0.0362<br>(-0.19)                                        | 0.1256<br>(3.18)***                                   | 0.1247<br>(2.96)***                                    |
| ACEXPERT  | -0.0780<br>(-0.28)                                       | 0.1274<br>(0.83)                                         | 0.2761<br>(1.13)                                          | 0.0660<br>(0.90)                                      | 0.0674<br>(0.87)                                       |
| AUFEE     |                                                          | 0.8079<br>(11.40)***                                     | -0.6248<br>(-0.43)                                        |                                                       |                                                        |
| NONAUFEE  |                                                          |                                                          |                                                           | 0.1850<br>(11.54)***                                  | 0.1771<br>(1.32)                                       |
| SIZE      | 0.2599<br>(2.55)**                                       | 0.3071<br>(4.68)***                                      | 1.0140<br>(1.41)                                          | 0.3725<br>(13.14)***                                  | 0.3785<br>(3.58)***                                    |
| SEGNUM    | 0.1510<br>(0.96)                                         | 0.0866<br>(1.00)                                         | 0.3512<br>(1.22)                                          | 0.1326<br>(3.21)***                                   | 0.1346<br>(2.53)**                                     |
| EMPLS     | 1.7553<br>(1.21)                                         | 0.0470<br>(0.06)                                         | 2.2991<br>(0.93)                                          | 1.3323<br>(3.54)***                                   | 1.3410<br>(3.32)***                                    |
| LEV       | 0.0733<br>(0.17)                                         | 0.3457<br>(1.44)                                         | 0.3681<br>(1.22)                                          | -0.0859<br>(-0.74)                                    | -0.0835<br>(-0.68)                                     |
| LIQ       | -0.0112<br>(-0.47)                                       | -0.0135<br>(-1.04)                                       | -0.0512<br>(-1.24)                                        | -0.0201<br>(-3.28)***                                 | -0.0204<br>(-2.72)***                                  |
| INVREC    | 0.0802<br>(0.13)                                         | 0.3804<br>(1.12)                                         | 1.7508<br>(1.21)                                          | 0.7195<br>(4.51)***                                   | 0.7285<br>(3.30)***                                    |
| ROA       | 0.5750<br>(0.66)                                         | 0.1953<br>(0.41)                                         | -0.0590<br>(-0.09)                                        | -0.1540<br>(-0.68)                                    | -0.1528<br>(-0.67)                                     |
| INSHOLD   | -0.0010<br>(-0.27)                                       | -0.0006<br>(-0.30)                                       | -0.0025<br>(-0.80)                                        | -0.0009<br>(-0.99)                                    | -0.0009<br>(-0.98)                                     |
| DAUTEN    | 0.0194<br>(0.07)                                         | -0.0818<br>(-0.55)                                       | -0.1934<br>(-0.89)                                        | -0.0627<br>(-0.89)                                    | -0.0635<br>(-0.88)                                     |
| DFOR      | 0.0471<br>(0.25)                                         | 0.1002<br>(0.98)                                         | 0.4299<br>(1.21)                                          | 0.1758<br>(3.65)***                                   | 0.1779<br>(2.98)***                                    |
| DLOSS     | -0.0089<br>(-0.04)                                       | -0.0502<br>(-0.37)                                       | 0.1303<br>(0.53)                                          | 0.0955<br>(1.47)                                      | 0.0962<br>(1.46)                                       |
| GRSALES   | 0.0858<br>(1.11)                                         | 0.0248<br>(0.59)                                         | -0.0389<br>(-0.47)                                        | -0.0409<br>(-2.04)**                                  | -0.0409<br>(-2.04)**                                   |
| AUOP      | -0.1606<br>(-0.77)                                       | 0.0935<br>(0.82)                                         | 0.3092<br>(1.19)                                          | 0.1045<br>(1.93)*                                     | 0.1061<br>(1.77)*                                      |
| BENEFIT   | -0.1467<br>(-0.88)                                       | 0.1398<br>(1.54)                                         | 0.2437<br>(1.58)                                          | 0.0302<br>(0.70)                                      | 0.0319<br>(0.60)                                       |
| BTM       | 0.0322<br>(0.39)                                         | 0.0097<br>(0.21)                                         | -0.0725<br>(-0.72)                                        | -0.0524<br>(-2.47)**                                  | -0.0529<br>(-2.32)**                                   |

**Table 3 (continued)—The Relation of the Composite Proxy for Audit Committee Effectiveness with the Non-Audit Fee Ratio, Log Non-Audit Fees and Log Audit Fees**

|                               |                     |                     |                    |                     |                     |
|-------------------------------|---------------------|---------------------|--------------------|---------------------|---------------------|
| DEXOR                         | -0.1331<br>(-0.48)  | -0.0343<br>(-0.23)  | 0.0701<br>(0.32)   | 0.0613<br>(0.85)    | 0.0615<br>(0.85)    |
| CBANKCY                       | 0.0013<br>(2.06)**  | 0.0006<br>(1.69)*   | 0.0008<br>(1.65)   | -0.0000<br>(-0.05)  | -0.0000<br>(-0.01)  |
| RESTATE                       | -0.2358<br>(-0.82)  | -0.2699<br>(-1.72)* | -0.2737<br>(-1.40) | 0.0390<br>(0.52)    | 0.0370<br>(0.45)    |
| ANRET                         | -0.2369<br>(-1.43)  | -0.0457<br>(-0.51)  | -0.0151<br>(-0.13) | 0.0250<br>(0.58)    | 0.0249<br>(0.58)    |
| VOLATIL                       | 75.2873<br>(1.03)   | 93.2101<br>(2.34)** | 94.4138<br>(1.90)* | -14.9100<br>(-0.79) | -14.0434<br>(-0.59) |
| ISSUE                         | 0.4988<br>(2.61)*** | 0.3188<br>(3.06)*** | 0.4099<br>(2.58)** |                     |                     |
| REPLAG                        |                     |                     |                    | 0.0031<br>(2.01)**  | 0.0031<br>(1.98)**  |
| Regression Summary Statistics |                     |                     |                    |                     |                     |
| F-value                       | 2.96***             | 27.39***            | 15.40***           | 64.31***            | 60.73***            |
| Adj. R-square                 | 0.0829              | 0.5562              | 0.4061             | 0.7504              | 0.7393              |
| N                             | 780                 | 780                 | 780                | 780                 | 780                 |

t-values are based on a two-tailed test. \*, \*\*, and \*\*\* indicate significance at the 10, 5, and 1 percent level, respectively. To keep the presentation brief, coefficient estimates for the 13 industry dummy variables are not presented. The variables are as defined earlier

Another result of interest is the relationship between audit and non-audit fees. We find that log non-audit fees are statistically significantly related with the log audit fees in the single-equation estimations (Columns B and D). The statistical significance of the association disappears when we model the endogeneity between audit fees and non-audit fees (Columns C and E). We show that Whisenant *et al.*'s (2003) results are robust to the inclusion of audit committee characteristics.<sup>11</sup> Finally, we find that the presence of an expert on the audit committee does not affect the fees in any of the estimations.

Regarding the control variables in the non-audit fee simultaneous equation estimations (Tables 3, Column C), the coefficients on VOLATIL and ISSUE are statistically significant. In the audit fee simultaneous equation estimations (Table 3, Column E), SIZE, SEGNUM, EMPL, LIQ, INVREC, DFOR, GRSales, AUOP, BTM, and REPLAG are statistically significant. Interestingly, firm size is related to the non-audit fee ratio and non-audit fees in the single equation estimations but not to non-audit fees in the simultaneous equation estimation. This result is most likely due to the high correlation between audit fees and firm size ( $\rho = 0.75$ ).

It is significant that we find that Whisenant *et al.*'s (2003) result showing no association between audit and non-audit fees is robust to tests performed on a sample of firms that is different in composition from the sample used by those authors.

<sup>11</sup> Whisenant *et al.*'s (2003) results showing no association between the fees also hold when individual audit committee characteristics are included in the simultaneous equation models.

Compared to the Whisenant *et al.*'s sample, the median firm in our sample is more than five times as big; and median audit (non-audit) fees are more than two (three) times as large. There is, in general, also greater variation in the values all their variables which is potentially the reason why they find higher adjusted  $R^2$ 's and t-values.

Table 4 shows the relationship between the individual audit committee characteristics (independence, diligence, and expertise) and the fees using single and simultaneous equation estimations. As before, column A shows OLS estimates using the non-audit fee ratio as the dependent variable while column B has the OLS estimates using the log non-audit fee as the dependent variable. Both estimations show that the number of audit committee meetings (diligence) is the variable driving the inverse relation between audit committee effectiveness and non-audit fees (t-values are -2.18 and -2.00, respectively, denoting significance at the 5 percent level). In the simultaneous equation estimations (Column C), however, the number of meetings is not significantly related to non-audit fees (t-value = -0.66). In contrast, Columns D and E, show that the individual attributes of effective audit committees are significantly related to audit fees in both single and simultaneous equation estimations: independence at the 1 percent level and diligence at the 10 percent level. The same control variables that were significantly related to audit and non-audit fees in the simultaneous equation estimations in Table 3 are found to be significant determinants of the respective fees in Table 4.

### Additional Tests

We ran separate regressions by partitioning the sample according to client firm-size (i.e., small, medium, and large). These tests are motivated by prior research suggesting that auditors are more likely to compromise their independence with respect to large client firms because large client firms are more important to auditors. An opposing view argues that auditors are less likely to make compromises with respect to large clients because they face significantly higher reputational and litigation losses with audit failures involving large client firms (Ghosh *et al.*, 2004). Partitioning the sample according to size did not affect our conclusions. Specifically, in each of the size estimations using simultaneous equation models, the effect of the audit committee variables on non audit fees was insignificant. As for the remaining variables, the results were qualitatively similar to those documented using the pooled sample, although, as expected, the statistical significance of the some of independent variables decreased. Motivated by Kinney *et al.* (2004), we also attempted to examine the effect of audit committee effectiveness on the different categories of non-audit fees. Our fee data are from fiscal year 2000. During this period, companies only were required to disclose to the SEC two categories of non-audit fees: financial information fees (FIS) and other non-audit fees. Tax fees were not required to be disclosed until the end of the following year. Only 13.6 percent (106 firms) of our sample firms disclosed FIS fees. To evaluate whether our test results were driven by

**Table 4—The Relation of Audit Committee Characteristics with the Non-Audit Fee Ratio, Log Non-Audit Fees and Log Audit Fees, N = 780**

$$(1) \text{NAFRATIO}_i = \alpha_0 + \gamma_1 \text{ACINDEP}_i + \gamma_2 \text{ACMEET}_i + \gamma_3 \text{ACEXPERT}_i + \sum_k \beta_k \text{CNTRL}_{ki} + \sum_k \beta_k \text{INDUSTRY}_{ki} + \varepsilon_i$$

$$(2) \text{NONAUFEE}_i = \alpha_0 + \gamma_1 \text{ACINDEP}_i + \gamma_2 \text{ACMEET}_i + \gamma_3 \text{ACEXPERT}_i + \omega_1 \text{AUFEE}_i + \sum_k \beta_k \text{CNTRL}_{ki} + \sum_k \beta_k \text{INDUSTRY}_{ki} + \varepsilon_i$$

$$(3) \text{AUFEE}_i = \alpha_0 + \gamma_1 \text{ACINDEP}_i + \gamma_2 \text{ACMEET}_i + \gamma_3 \text{ACEXPERT}_i + \omega_1 \text{NONAUFEE}_i + \sum_k \beta_k \text{CNTRL}_{ki} + \sum_k \beta_k \text{INDUSTRY}_{ki} + \varepsilon_i$$

|           | A                    | B                    | C                  | D                     | E                     |
|-----------|----------------------|----------------------|--------------------|-----------------------|-----------------------|
|           | NAFRATIO             | NONAUFEE             | NONAUFEE           | AUFEE                 | AUFEE                 |
|           | Sing. Eqn.           | Sing. Eqn.           | Simul. Eqn.        | Sing. Eqn.            | Simul. Eqn.           |
| Variables | Coefficients         | Coefficients         | Coefficients       | Coefficients          | Coefficients          |
|           | (t-value)            | (t-value)            | (t-value)          | (t-value)             | (t-value)             |
| Intercept | 0.6905<br>(0.75)     | 0.5306<br>(0.67)     | 12.1493<br>(1.00)  | 7.0707<br>(25.83)***  | 7.0609<br>(6.92)***   |
| ACINDEP   | -0.5919<br>(-1.30)   | -0.3446<br>(-1.39)   | 0.0437<br>(0.09)   | 0.3146<br>(2.66)***   | 0.3147<br>(2.63)***   |
| ACMEET    | -0.0941<br>(-2.18)** | -0.0470<br>(-2.00)** | -0.0244<br>(-0.66) | 0.0213<br>(1.89)*     | 0.0213<br>(1.74)*     |
| ACEXPERT  | -0.0734<br>(-0.26)   | 0.1298<br>(0.84)     | 0.2656<br>(1.13)   | 0.0623<br>(0.85)      | 0.0620<br>(0.80)      |
| AUFEE     |                      | 0.8084<br>(11.40)*** | -0.5434<br>(-0.39) |                       |                       |
| NONAUFEE  |                      |                      |                    | 0.1851<br>(11.55)***  | 0.1865<br>(1.37)      |
| SIZE      | 0.2573<br>(2.52)**   | 0.3058<br>(4.64)***  | 0.9779<br>(1.39)   | 0.3767<br>(13.23)***  | 0.3757<br>(3.51)***   |
| SEGNUM    | 0.1673<br>(1.06)     | 0.0932<br>(1.07)     | 0.3356<br>(1.23)   | 0.1268<br>(3.07)***   | 0.1265<br>(2.36)**    |
| EMPLS     | 1.9895<br>(1.37)     | 0.1772<br>(0.22)     | 2.1989<br>(0.95)   | 1.2425<br>(3.29)***   | 1.2409<br>(3.02)***   |
| LEV       | 0.0695<br>(0.16)     | 0.3422<br>(1.42)     | 0.3749<br>(1.26)   | -0.0779<br>(-0.67)    | -0.0783<br>(-0.64)    |
| LIQ       | -0.0131<br>(-0.55)   | -0.0143<br>(-1.10)   | -0.0501<br>(-1.24) | -0.0202<br>(-3.27)*** | -0.0201<br>(-2.64)*** |
| INVREC    | 0.0975<br>(0.16)     | 0.3921<br>(1.16)     | 1.6857<br>(1.20)   | 0.7184<br>(4.50)***   | 0.7169<br>(3.21)***   |
| ROA       | 0.6492<br>(0.74)     | 0.2316<br>(0.48)     | -0.0490<br>(-0.08) | -0.1861<br>(-0.82)    | -0.1863<br>(-0.81)    |
| INSHOLD   | -0.0013<br>(-0.36)   | -0.0007<br>(-0.36)   | -0.0025<br>(-0.81) | -0.0008<br>(-0.92)    | -0.0008<br>(-0.89)    |
| DAUTEN    | -0.0098<br>(-0.04)   | -0.0958<br>(-0.65)   | -0.1884<br>(-0.92) | -0.0517<br>(-0.73)    | -0.0515<br>(-0.72)    |
| DFOR      | 0.0463<br>(0.25)     | 0.0987<br>(0.96)     | 0.4113<br>(1.18)   | 0.1768<br>(3.66)***   | 0.1764<br>(2.95)***   |
| DLOSS     | 0.0141<br>(0.06)     | -0.0400<br>(-0.30)   | 0.1249<br>(0.52)   | 0.0908<br>(1.40)      | 0.0907<br>(1.37)      |
| GRSALES   | 0.0769<br>(0.99)     | 0.0204<br>(0.48)     | -0.0388<br>(-0.48) | -0.0397<br>(-1.97)**  | -0.0397<br>(-1.97)**  |
| AUOP      | -0.1395<br>(-0.67)   | 0.1017<br>(0.89)     | 0.3062<br>(1.20)   | 0.1040<br>(1.92)*     | 0.1038<br>(1.71)*     |
| BENEFIT   | -0.1300<br>(-0.78)   | 0.1467<br>(1.62)     | 0.2406<br>(1.63)   | 0.0267<br>(0.62)      | 0.0264<br>(0.49)      |

**Table 4 (continued)—The Relation of Audit Committee Characteristics with the Non-Audit Fee Ratio, Log Non-Audit Fees and Log Audit Fees, N = 780**

|         |                    |                     |                     |                      |                      |
|---------|--------------------|---------------------|---------------------|----------------------|----------------------|
| BTM     | 0.0359<br>(0.43)   | 0.0117<br>(0.26)    | -0.0685<br>(-0.68)  | -0.0547<br>(-2.58)** | -0.0547<br>(-2.39)** |
| DEXOR   | -0.0710<br>(-0.26) | -0.0061<br>(-0.04)  | 0.0764<br>(0.37)    | 0.0467<br>(0.65)     | 0.0467<br>(0.64)     |
| CBANKCY | 0.0013<br>(2.01)** | 0.0005<br>(1.65)*   | 0.0007<br>(1.62)    | -0.0000<br>(-0.04)   | -0.0000<br>(-0.04)   |
| RESTATE | -0.1872<br>(-0.65) | -0.2442<br>(-1.55)  | -0.2648<br>(-1.37)  | 0.0243<br>(0.32)     | 0.0246<br>(0.30)     |
| ANRET   | -0.2357<br>(-1.42) | -0.0440<br>(-0.49)  | -0.0180<br>(-0.16)  | 0.0228<br>(0.53)     | 0.0228<br>(0.53)     |
| VOLATIL | 81.1341<br>(1.10)  | 96.1290<br>(2.40)** | 97.7311<br>(2.00)** | -14.7470<br>(-0.77)  | -14.8982<br>(-0.61)  |
| ISSUE   | 0.4890<br>(2.56)** | 0.3127<br>(3.00)*** | 0.4026<br>(2.55)**  |                      |                      |
| REPLAG  |                    |                     |                     | 0.0031<br>(2.00)**   | 0.0031<br>(1.98)**   |

**Regression Summary Statistics**

|               |          |          |          |          |          |
|---------------|----------|----------|----------|----------|----------|
| F-value       | 2.985*** | 26.68*** | 15.61*** | 62.62*** | 59.16*** |
| Adj. R-square | 0.0806   | 0.5561   | 0.4160   | 0.7504   | 0.7393   |
| N             | 780      | 780      | 780      | 780      | 780      |

t-values are based on a two-tailed test. \*, \*\*, and \*\*\* indicate significance at the 10, 5, and 1 percent level, respectively. To keep the presentation brief, coefficient estimates for the 13 industry dummy variables are not presented. Variables are as defined earlier

financial information fees, we subtracted FIS from total non-audit fees and used these amounts in our estimations. The results obtained were qualitatively similar to those reported earlier.

## Conclusion

The SEC and Congress expect audit committees to play a critical role in monitoring the economic ties between management and the external auditor. Fees paid to the external auditor for audit and non-audit services represent an important element of the economic relationship between management and the external auditor. There have, however, been only a few studies that have examined the association of audit committee characteristics with the fees paid to the auditor. Prior studies used single equation models of audit and non-audit fees. Recent work by Whisenant *et al.* (2003) and Antle *et al.* (2002), however, shows that audit and non-audit fees are endogenously determined, suggesting that single equation estimates suffer from significant simultaneous equation bias. Both these studies, however, exclude audit committee variables in their analyses. They also provide mixed evidence on whether audit and non-audit fees influence each other in the simultaneous equation estimations.

Our main results are as follows. First, we find that audit and non-audit fees are positively related to each other in the single equation estimations but are unrelated

when they are modeled jointly. These results suggest that there are no knowledge spillovers from audit to non-audit services and vice-versa. Second, we find that the independence and diligence of audit committees are positively associated with audit fees. Both single equation and simultaneous estimations provide similar evidence on these relationships. These results support the contention that effective audit committees positively influence audit coverage. Third, we confirm Abbott *et al.*'s (2003b) findings showing that a composite proxy for audit committee effectiveness is inversely related to the non-audit fee ratio. Those authors suggest that effective audit committees reduce non-audit services because they perceive non-audit services as compromising auditor independence. A closer inspection shows that when audit and non-audit fees are modeled jointly, the composite proxy is not statistically significantly related to non-audit fees. We conclude that the negative association documented in the single-equation estimations with non-audit fees is spurious and occurs because the simultaneity of the fees is not taken into account. The tests exploring associations between individual audit committee characteristics with non-audit fees also do not show an inverse association.

As with all studies that fail to reject the null, this paper could be criticized on the basis that our tests possibly lack the power to detect an inverse relation of audit committee characteristics with non-audit fees. It is noteworthy that in addition to the decrease in statistical significance, the magnitude of the coefficient on audit committee effectiveness, ACEFF, decreases about 84 percent, from 0.190 to 0.036, when we estimate the non-audit fee model jointly (Table 3, Model B versus Model C). This is consistent with the single equation non-audit fee model suffering from a significant simultaneous equation bias. In contrast, the coefficient on ACEFF remains the same, about 0.12, when we singly or jointly estimate the audit fee model (Table 3, Model D versus Model E).

Our study adds to the recent body of work which suggests that auditor consulting does not, on average, appear to compromise auditor independence. See, for example, recent studies by Chung and Kallapur (2003) and Ashbaugh *et al.* (2003) who conclude that non-audit fees do not affect auditor independence. An alternative explanation for our results is that even effective audit committees do not adequately monitor non-audit fees as they should or have no control over what can be purchased from the external auditor. Regardless, these results call into question Abbott *et al.*'s (2003b) conclusions based on single equation estimations that effective audit committees reduce non-audit services because they perceive non-audit services as compromising auditor independence. In our view, the issue of whether audit committees view non-audit fees as impairing auditor independence should remain an unresolved issue that deserves further research. Future work could examine whether the relationships between certain financial variables (e.g., discretionary accruals) and audit and non-audit fees documented previously using single equation estimations

are also significantly impacted by the endogenous nature of the fees. Future research could attempt to model audit committee characteristics endogenously.

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