

**EARNINGS QUALITY AND AUDITOR INDEPENDENCE:
AN EXAMINATION USING NON-AUDIT FEE DATA**

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First draft: July 13, 2001
This draft: November 30, 2001

We are grateful for helpful comments received from two anonymous reviewers from the 2002 American Accounting Association Mid-Year Auditing Section Conference, and workshop participants at Florida State University, Rutgers University-Camden, Temple University, and Virginia Commonwealth University, particularly Lisa Gaynor, Bill Hillison, Jagan Krishnan, Emeka Nwaeze, Jayaraman Vijayakumar, and Benson Wier.

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ABSTRACT

The SEC and capital market participants are concerned that the increasing amounts of fees companies pay to their auditors for non-audit services may give auditors economic incentives to compromise their independence, resulting in lower quality audits and, thus, lower quality earnings. Using recent proxy statement disclosures of audit and non-audit fees, and controlling for variables known to be related to earnings management, we find that client firms paying high proportions of non-audit fees have income-increasing discretionary and total accruals. This suggests that auditors may be less diligent in curbing income-increasing earnings management for client firms from which they receive high proportions of non-audit fees. Our results are robust to alternative specifications of accrual models, surrogate measures of high non-audit fees, and the inclusion of additional explanatory variables.

Key Words: *Quality of earnings, non-audit fees, auditor independence, discretionary accruals.*

Data Availability: *Data are available from public sources identified in the paper.*

INTRODUCTION

In response to increasing concerns by regulators, investors, and the public at large regarding the reliability of audited financial statements and the quality of financial reporting, the Securities and Exchange Commission (SEC) requested that the Public Oversight Board (POB) “assess the effects of recent trends in auditing on the quality of audits and on the public interest” (POB 2000b).¹ In October 1998 the POB established the Panel on Audit Effectiveness (Panel) to take on this task. The Panel’s final *Report and Recommendations*, issued on August 31, 2000, addresses numerous concerns including the effect of non-audit services on auditor independence and the relation between earnings management and the quality of earnings. Our study addresses some of the questions raised by the Panel by providing empirical evidence on the relation between non-audit service fees and earnings quality.

The POB notes that “there has been an explosive growth in non-audit services in recent years, to the point where many large firms’ revenues from these services exceed their audit revenues” (POB 2000a, 115). The increasing size and growth of these non-audit revenues have some members of the Panel alarmed. Panel members who are proponents of an exclusionary ban on non-audit services view these services in the same way that they view auditors owning stock in the companies they audit. They state that “prospective revenues from the provision of non-audit services, extending into the future, create precisely the kind of financial stake that produces a conflict of interest capable of impairing independence” (POB 2000a, 121).

One of the factors the Panel recommends to the Independence Standards Board (ISB) in the evaluation of the appropriateness of a particular service is “the size of the fee(s) for the non-audit service(s)” (POB 2000a, 116, 117). Levitt (2001) reiterates this point in his letter to the

audit committee chairmen of the top 5,000 public companies. The underlying concern is whether consulting (non-audit) fees create a dependency on a given client that impairs the reliability and quality of financial reporting (Wallman 1996). Regulators are concerned that, if there is such a dependency, the auditors may be less diligent regarding their attestation function. This compromise in auditor decision-making may result in clients engaging in more aggressive earnings management.²

Investors, creditors, and regulators expect auditors to curb earnings management and attest to fair financial reporting. Some Panel members believe that non-audit services do not inhibit the auditor's ability to perform this function, and suggest that no evidence exists linking non-audit services and audit failures (POB 2000a, 127). Others disagree, believing that the marketing of non-audit services to audit clients creates "a tension counterproductive to audit excellence" (POB 2000a, 122).

Prior research on U.S. companies provides little empirical evidence on the relation between audit quality and non-audit fees.³ Former Acting SEC Chairman Laura Unger (2001b) states:

Even casual observers of the Commission's recent rulemaking probably know that certain accounting firms argued that there was no empirical evidence to show that providing non-audit services affect audit quality. What accounting firms didn't talk about was that such 'evidence' would be hard to come by. Among other things, accounting firms and their audit clients did not have to disclose the audit and non-audit fees charged to individual clients.

Such evidence is now available. The SEC's revised rules on auditor independence (effective February 5, 2001) require that public companies disclose in proxy statements amounts paid to their independent accounting firms for audit and non-audit services. The purpose of these disclosure requirements is to allow financial statement users an opportunity to draw their

own conclusions regarding the effect of non-audit services on an auditor's independence. These disclosures will also have an effect on the behavior of auditors. Auditors are aware of the concerns that the public and the regulators have regarding auditor independence and now that the fees paid to auditors are publicly available, the auditors may be less likely to give in to client pressures and more likely to treat their high non-audit fee clients with the same level of independence as their low non-audit fee clients.⁴

The new proxy disclosure rules result primarily from the SEC's concerns that high non-audit service fees paid by client firms to their auditors could impair an auditor's independence, reduce the quality of the audit, and result in lower quality earnings. However, because independence is unobservable, we cannot empirically test the relation between non-audit service fees and auditor independence. Thus, we examine instead the relation between non-audit service fees and earnings quality. We use total and discretionary accounting accruals to proxy for earnings quality, because prior research finds that firms use accruals to manage earnings (DeFond and Park 1997; Jones 1991; Healy 1985) and that accruals offer a robust and parsimonious measure of earnings quality (Sloan, 1996; Richardson, et al, 2001). Our approach is to see if, after controlling for known determinants of accounting accruals, there is a relation between non-audit service fees and earnings quality.

We choose a sample of S&P 500 firms for our study for a number of reasons. These firms are high-profile, likely to represent companies paying the highest fees to their auditors, and thus represent the largest potential economic dependency for audit firms. More importantly, by restricting the sample to S&P 500 firms we create a more homogeneous group with audit fees that are of comparable magnitude. In such a homogenous group, the variations in the non-audit fee to total fee ratio will be driven primarily by non-audit fees, and hence offer a better measure

of the relation between non-audit fees and accruals. Including smaller firms can confound the analyses in other ways. A smaller firm could possibly have a large non-audit fee ratio but be of little influence because the total fees it pays will be relatively inconsequential to the audit firm.

Consistent with concerns of regulators, the empirical results show that client firms paying higher proportions of non-audit fees to their external auditors have significantly higher (income-increasing) total and discretionary accruals. Because auditors derive their revenues exclusively from client fees, the inherent economic dependency between the auditor and the client firm may reduce auditors' incentives to curb earnings management. Alternatively, our findings could result from unknown omitted variables that are correlated with both non-audit service fees and accounting accruals. However, sensitivity analyses show that our results are robust to alternative specifications of accrual models, surrogate measures of high non-audit fees, and the inclusion of additional explanatory variables.

The rest of the paper is organized as follows. Section II reviews the relevant literature and develops our testable hypothesis on the relation between discretionary accruals and the proportion of non-audit fees. Section III describes the sample selection and research methodology used in the paper. The fourth section presents our results and the fifth section summarizes and concludes.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

In modern corporations characterized by the separation of ownership and control, auditors play an important monitoring role (Jensen and Meckling 1976; Watts and Zimmerman 1986). Stakeholders rely on financial information provided by management for investment, financing and other decisions. To assure users of the veracity of the financial statements, management

hires independent auditors to attest to the reliability of the statements. However, management controls the process of hiring and firing independent auditors and there are quasi-rents associated with auditing contracts (DeAngelo 1981a, 1981b). Auditors therefore have incentives to yield to pressures from management. This implies that the reliability of the information contained in audited financial statements depends upon the level of independence of the auditor (Becker et al. 1998).

Prior research into auditors' independence typically focuses on measuring audit quality. Past studies proxy audit quality by auditor size and use an indicator variable to distinguish between companies that hire Big 5 versus non-Big 5 auditors. Most of these results confirm that Big 5 auditors are of higher quality and, thus, must be more independent (DeAngelo 1981a, 1981b; Palmrose 1986, 1988; Francis and Simon 1987; Becker et al. 1998; Francis et al. 1999). However, using the Big 5 versus the non-Big 5 classification as a proxy for independence implicitly assumes that Big 5 firms are homogeneous. Further, it assumes that each Big 5 firm has a uniform level of independence that it maintains with respect to each client-that is, it treats each of its clients exactly the same with regard to independence.

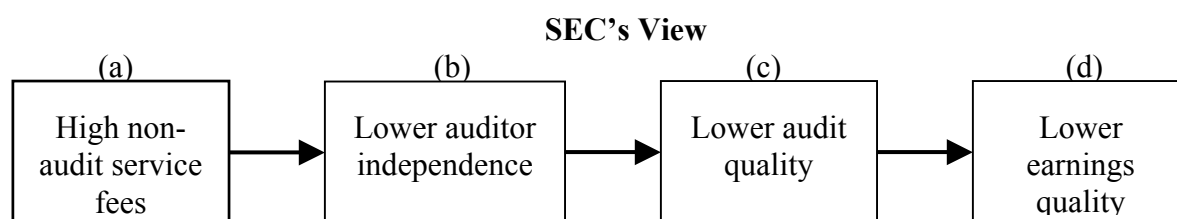
To overcome these limitations, Wallman (1996) suggests an office level instead of a firm level analysis of independence. Using such an analysis, Reynolds and Francis (2001) provide evidence that the level of independence of an auditor varies across its clients. They find that auditors allow less discretion to their relatively large and influential clients suggesting that concerns for reputation loss and fear of litigation dominate any economic dependencies auditors may have on these clients. For this reason, and because an increase in client size is associated with an increase in total fees which is considered to be a source of economic dependence, Reynolds and Francis (2001) conclude that the SEC's emphasis on consulting fees is

misdirected. However, audit and non-audit fees may have differing effects on auditor independence and auditor decision-making.

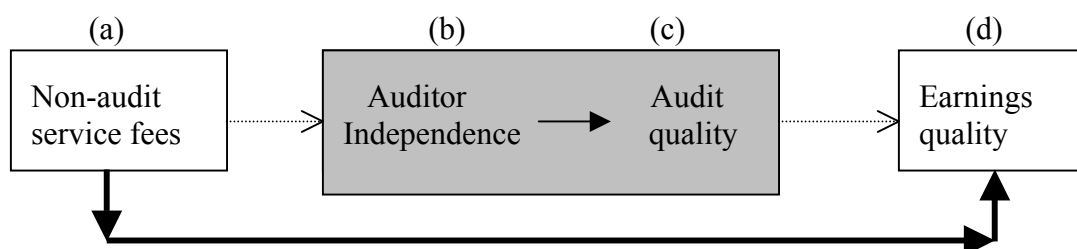
One view is that the provision of non-audit services doesn't necessarily cause auditors to compromise their independence (Wallman 1996). Proponents of this view suggest that non-audit services performed for audit clients complement the audit function by providing more information about the client firm's business and hence increase the quality of financial reporting. An opposing view is that providing non-audit services to audit clients may create increased economic bonding with client firms (Simunic 1984; Parkash and Venable 1993; Firth 1997). In this case, the information advantage from the "joint supply of services" would not improve the quality of financial reporting if the economic bonding is significant enough to convince auditors to compromise their independence.

Simunic (1984) suggests two conditions under which the joint performance of auditing and management advisory services (MAS) may lead to the compromise of auditor independence. First, losing the auditing contract can lead to losing the MAS contract, if the audit and MAS are tied together. Second, the audit firm loses any economic rents derived from providing the MAS, if the specialized resources from the MAS cannot be transferred to an alternative use.

The new proxy disclosure rules result primarily from the SEC's concerns that high non-audit service fees paid by client firms to their auditors could impair an auditor's independence, reduce the quality of the audit, and result in lower quality earnings. The SEC's concerns may be illustrated as follows:



However, because auditor independence is unobservable, a direct test of the relation between non-audit service fees and independence is impossible. Therefore, we take the following approach.



We examine the relation between non-audit service fees and earnings quality as measured by earnings management, i.e., the relation between (a) and (d). We treat auditor independence and audit quality as a black box, and look only at the output of that black box. A positive association between non-audit services fees and earnings management, after controlling for known determinants of earnings management, may be indicative of the effect non-audit service fees have on auditor independence and hence on earnings management. However, a positive association between non-audit service fees and earnings management could result from correlated omitted variables which may be driving both non-audit service fees and earnings management.

We use two specifications of non-audit service fees in our tests. The first measure is a continuous variable defined as the ratio of non-audit fees to total fees. The second measure is a dichotomous variable that is set to one if a firm's non-audit fee ratio is higher than the median ratio for all firms in the sample, and zero otherwise.

Earnings quality is difficult to measure; however, prior research relates earnings quality to the level of earnings management. Schipper (1989, 92) defines earnings management as “a

purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain (as opposed to, say, merely facilitating the neutral operation of the process).” Unger (2001a) asserts: “A lack of quality of earnings refers to distortions in financial statements resulting from undisclosed changes in underlying accounting assumptions. Such undisclosed changes are being used to improperly inflate operating results.” Prior research finds that firms use accounting accruals to manage earnings (DeFond and Park 1997; Jones 1991; Healy 1985) and accruals offer a robust and parsimonious measure of earnings quality (Sloan, 1996; Richardson, et al. 2001). We use two metrics, total accruals and discretionary accruals, as measures of the level of earnings management and hence earnings quality. As in DeFond and Jiambalvo (1994) and Subramanyam (1996), we use the cross-sectional Jones (1991) model to estimate discretionary accruals.⁵

We chose the level instead of the absolute value of accruals for several reasons. First, the Panel seems concerned about income-increasing accruals, noting that “In the end, most would agree that inappropriately increasing earnings results in a lower quality of earnings” (POB 2000a, 79). Second, Heninger (2001) finds the probability of auditor litigation increases as clients report more positive (income-increasing) accruals. Third, auditors seem to focus on income-increasing earnings management (Becker et al. 1998). Finally, Healy and Wahlen (1999), in their review of the earnings management literature, note that most of the evidence supports firms making income-increasing accruals. Examples of incentives and pressures on managers to increase earnings include their desire to boost their compensation levels, enhance job security, avoid debt contract violations, meet or beat earnings expectations, and maximize proceeds from security offerings (Healy and Wahlen 1999).⁶ Therefore, as in Becker et al.

(1998) and Heninger (2001), we predict that if earnings management is occurring in our sample firms, the discretionary accruals will be income-increasing.

In order to test whether the provision of non-audit services is an activity that has the potential to create a dependency that could bias auditing judgments and impair the quality and reliability of financial reporting (Wallman 1996), we propose the following hypothesis:

H_a: Ceteris paribus, companies that pay higher proportions of non-audit fees to their external auditors report income-increasing accruals.

SAMPLE SELECTION AND RESEARCH METHODOLOGY

Sample Selection

Table 1 presents the sample selection procedure. We begin with an initial sample of all 408 firms from the S&P 500 that filed proxy statements under the SEC's revised audit fee disclosure rules by September 1, 2001.

[Insert Table 1 here]

We focus on the S&P 500 primarily because measurement error in the variable of interest, the ratio of non-audit fees to total fees, will be at a minimum in a homogenous group. Audit fees enter the measurement of the non-audit fee ratio through their effect on total fees. It is well documented that audit fees are highly associated with the size of the client firm. By restricting the sample to S&P 500 firms we create a more homogeneous group with audit fees that are of comparable magnitude. In such a homogenous group, the variations in the non-audit fee ratio will be principally driven by non-audit fees and hence offer a better measure of the effect of non-audit fees on accruals. Including smaller firms can confound the analyses in other ways as well. The ratio measure, non-audit fees to total fees, is without scale and does not

capture the overall influence of the magnitude of fees on auditors. A smaller firm could possibly have a large ratio but be of little influence because the total fees it pays will be relatively inconsequential to the audit firm.

As in other studies using accounting accruals, we exclude firms in financial (SIC 6000-6999) and electric utility industries (SIC 4900-4999). Computing total and discretionary accruals used in the empirical models is problematic for financial firms due to their unique financial statement reporting requirements (Becker et al. 1998). We exclude utilities because incentives to manage earnings may differ for firms in regulated industries as compared to firms in unregulated industries (Becker et al. 1998).

Using the cross-sectional Jones model to estimate accounting accruals requires classification of firms by their industry membership using two-digit SIC codes. Due to the sensitivity of cross-sectional discretionary accrual models to a small number of observations, we exclude firms in two-digit SIC codes containing less than five firms. Five firms changed auditors in 1999 or 2000 and are excluded from the sample because auditor changes can affect discretionary accruals (DeFond and Subramanyam 1998). Firms with data missing from Standard and Poor's Research Insight are excluded. We exclude four firms that were highly influential in the regression analyses.⁷ We gather data on audit fees and non-audit service fees from proxy statements and from data published in the Wall Street Journal (Weil and Tannenbaum 2001). All exclusions result in 203 firms for the final sample.

Research Methodology

We conduct both univariate and multivariate tests of our hypothesis that discretionary and total accruals increase as the proportion of non-audit service fees to total fees increases. Section IV presents the results of these analyses.

For the univariate tests, we divide the sample firms into two groups. Firms in the high non-audit fee (low non-audit fee) group are firms that have a ratio of non-audit fees to total fees above (below) the median for all the firms in the sample.⁸ We use a t-test to see if firms in the high non-audit fee group have a larger mean value of total and discretionary accruals than firms in the low non-audit fee group.

The univariate model, however, suffers from a correlated omitted variables problem since it does not control for the effect of variables such as leverage, size and operating cash flows that prior studies have found to be related to discretionary accruals (Jones 1991; Dechow et al. 1995; Becker et al. 1998; Reynolds and Francis 2001). To address the correlated omitted variables issue and enhance the reliability of the results, we run regression models of total and discretionary accruals on the variable of interest, ratio of non-audit fee to total fee, and other control variables.

The SEC generally considers managed earnings to be of lower quality (Levitt 1998; Unger 2001a). Thus, we use earnings management, measured by the levels of total and discretionary accruals, to proxy for lower-quality financial reporting in the empirical models. The estimation of discretionary accruals (DA) requires the calculation of total accruals (TA) and the estimation of nondiscretionary accruals (NDA). We use the cross-sectional Jones model to estimate NDA (DeFond and Jiambalvo 1994; Subramanyam 1996). We choose this model

because prior research finds it to be better specified than time series and other models of discretionary accruals (Dechow et al. 1995; Subramanyam 1996; Bartov et al. 2001).

Total accruals (TA) are computed using the balance sheet approach (Jones 1991).

$$TA_{it} = \Delta CA_{it} - \Delta CASH_{it} - \Delta CL_{it} + \Delta STDEBT_{it} - DEPTN_{it} \quad (1)$$

where ΔCA_{it} = change in current assets for firm i during year t (Compustat data # 4); $\Delta CASH_{it}$ = change in cash for firm i during year t (Compustat data # 1); ΔCL_{it} = change in current liabilities for firm i during year t (Compustat data # 5); $\Delta STDEBT_{it}$ = change in short-term debt for firm i during year t (Compustat data # 34); $DEPTN_{it}$ = depreciation and amortization expense for firm i during year t (Compustat data # 14).

In the cross-sectional Jones model nondiscretionary accruals are estimated by industry (DeFond and Jiambalvo 1994; Dechow et al. 1995; DeFond and Subramanyam 1997; Reynolds and Francis 2001; Bartov et al. 2001). First we fit an industry-specific model (using two-digit SIC codes) that relates total accruals to the change in revenues and gross property, plant, and equipment for the year 2000 (all variables are scaled by lagged total assets).

$$TA_{ijt} / A_{ijt-1} = \alpha(1 / A_{ijt-1}) + \beta_1(\Delta REV_{ijt} / A_{ijt-1}) + \beta_2(PPE_{ijt} / A_{ijt-1}) + e_{ijt} \quad (2)$$

where, TA_{ijt} = total accruals for sample firm i in industry j for year t; A_{ijt-1} = total assets for sample firm i in industry j for year t-1; ΔREV_{ijt} = change in net revenues for sample firm i in industry j for year t; PPE_{ijt} = gross property, plant, and equipment for sample firm i in industry j for year t; e_{ijt} = unexpected portion of total accruals for sample firm i in industry j for year t.

Second, nondiscretionary accruals are calculated by firm using the estimated parameters from equation (2).

$$NDA_{it} = \hat{\alpha}(1 / A_{it-1}) + \hat{\beta}_1(\Delta REV_{it} / A_{it-1}) + \hat{\beta}_2(PPE_{it} / A_{it-1}). \quad (3)$$

Once nondiscretionary accruals are estimated, discretionary accruals are calculated as follows:

DA = TA – NDA. The empirical models specified below use both total and discretionary accruals as dependent variables.

Prior research shows that certain firm characteristics are associated with accounting accruals. A parsimonious set of these control variables includes the company's financial health, leverage, size, growth (Young 1999; Jones 1991), and whether the firm is financially distressed (Reynolds and Francis, 2001; DeAngelo et al. 1994).⁹

Financial health is proxied by operating cash flows scaled by lagged total assets (OCF) and is expected to vary inversely with discretionary accruals (Dechow et al. 1995). Prior research finds leverage to be related to discretionary accruals (Becker et al. 1998; DeFond and Park 1997; DeFond and Jiambalvo 1994). This relation can be positive or negative, thus we make no prediction as to sign. We use debt/total assets as a measure of leverage (LEVERAGE). In the sensitivity analysis section we use an indicator variable as a measure of leverage. The indicator variable, HIGHLEV is set equal to one if a company's leverage (total debt/total assets) is in the highest decile (10%) of the sample and zero otherwise (Becker et al 1998). We use the log of total assets to proxy for size (Becker et al. 1998; DeFond and Park 1997). Prior research has mixed findings with regard to size. Francis et al. (1999) and Reynolds and Francis (2001) report a negative coefficient for size, while Becker et al. (1998) and DeFond and Park (1997) find a positive sign. Thus, we have no signed prediction for size.

Studies find that the level of accruals may depend on the growth characteristics of firms (Young 1999; Jones 1991). Additionally, because growth and leverage are negatively related, it

is important to include growth in an accrual model that includes leverage. Including leverage but not growth in the model may result in leverage picking up the effects of growth (Reynolds and Francis 2001). We make no signed prediction for growth in our study.

Financially distressed firms have incentives to engage in income increasing earnings management (Reynolds and Francis, 2001). However, firms that are extremely financially distressed may have incentives to manage earnings downwards (DeAngelo et al. 1994). Financial distress is introduced in our model in a stepwise linear fashion using a dummy variable technique. The first dummy variable, HIDISTRESS, is set to one for those firms that have an Altman Z-score less than 1.81 and 0, otherwise. The second dummy variable, LODISTRESS, is set to one for those firms that have an Altman Z-score greater than 3 and 0, otherwise.

We use the following ordinary least squares (OLS) regression model to assess whether total accruals and/or discretionary accruals increase as the proportion of firms' non-audit fees increases. Finding a positive β_1 will support our hypothesis.

$$TA(\text{or } DA) = \beta_0 + \beta_1 \text{NONAUDIT} + \beta_2 \text{OCF} + \beta_3 \text{LEVERAGE} + \beta_4 \text{SIZE} + \beta_5 \text{GROWTH} + \beta_6 \text{HIDISTRESS} + \beta_7 \text{LODISTRESS} + \varepsilon \quad (4)$$

Where,

TA	=	total accruals;
DA	=	discretionary accruals;
NONAUDIT	=	the proportion of non-audit fees to total fees.
OCF	=	operating cash flows scaled by lagged total assets;
LEVERAGE	=	total debt/total assets;
SIZE	=	log of total assets;
GROWTH	=	market value of equity divided by book value of assets;
HIDISTRESS	=	1 if Altman's Z score is less than 1.81, 0 otherwise;

LODISTRESS = 1 if Altman's Z score is greater than 3, 0 otherwise.

The reported results use both a continuous variable, NONAUDIT, for the proportion of non-audit fees and a dichotomous variable, HINONAUD, in its place. This dichotomous variable equals one if the proportion of non-audit to total fees is above the sample median and zero otherwise.

RESULTS

Descriptive Statistics and Univariate Analysis

Table 2 presents descriptive statistics for the sample of 203 companies. For our sample, the mean non-audit fee of \$7.516 million is three times the size of the audit fee (\$2.422 million); the median non-audit fee of \$3.153 million is double the median audit fee (\$1.5 million). The mean (median) ratio of non-audit to total fees is 66.3% (68.4%). In other words, for our sample firms, non-audit fees account for two-thirds of the total fees that client firms pay to their auditors.¹⁰ The high magnitude of non-audit fees for our sample is consistent with the “explosive growth in non-audit services to audit clients” discussed by the POB (2000a, 115).

[Insert table 2 here]

As shown in Table 2, the mean (median) total accruals is -0.047 (-0.050), which is comparable to the mean (median) total accruals of -0.054 (-0.053) reported by Becker et al. (1998) for firms audited by Big 6 auditors. The average absolute value of discretionary accruals for our sample, 0.040, is almost double that of the Fortune 500 firms in Barton (2001). This could be due to his earlier sample period (1994-1996) or possibly to an increase in earnings management during the 1990's.

When we divide the sample into high and low non-audit fee groups (based upon whether the non-audit fee ratio is above or below the sample median), an interesting picture emerges. Column C of Table 3 presents difference of means tests for the two groups. Total accruals, discretionary accruals, and the absolute value of discretionary accruals are all significantly higher for the high non-audit fee group (p-values 0.046, 0.009, and 0.025, respectively). However, the difference between nondiscretionary accruals for the two groups is not significant (p-value 0.642). This implies that the difference in mean total accruals is driven by the difference in discretionary accruals, rather than the nondiscretionary (normal or expected) component.

[Insert Table 3 here]

Table 3 presents differences in means for additional firm economic characteristics. None of the other variables, extraordinary items (scaled by lagged total assets), leverage, size, growth and financial distress are significantly different between the two groups.

Taken together, the difference of mean tests reported in Table 3 show that firms in the high non-audit fee ratio group have higher accruals than those in the low group. To the extent that accruals measure the level of earnings management, the results suggest that firms in the high group manage earnings upwards and to a greater extent than firms in the low group. These results must be interpreted cautiously, however, as the observed differences may be the result of the nature of the univariate tests. The difference in accruals between the high and low groups could be driven by the differences in operating cash flows, leverage, size, growth and financial distress which are not controlled for in the univariate tests.

To address concerns about correlated omitted variables and validate the univariate results, we next analyze models that regress total and discretionary accruals on the ratio of non-audit fees to total fees and other control variables.

Multivariate Analysis

Primary Results

Table 4 presents regression results using discretionary and total accruals estimated by the cross-sectional Jones model. Standard diagnostic tests reveal no multicollinearity problems and the White statistic does not reject the joint hypothesis that the models are well-specified and homoscedastic (Belsley et al. 1980; White 1980).

[Insert Table 4 here]

Columns 1 and 2 present results using the “base model” of discretionary and total accruals. This model is equivalent to equation (4) excluding the variable NONAUDIT (ratio of non-audit fees to total fees). Using this base model allows us to compare our results with results reported in prior studies and also gives us a baseline to assess the effect the variable of interest (NONAUDIT) has on the explanatory power and fit of the models. Results from the base models indicate that both discretionary and total accruals are significantly negatively associated with operating cash flows, size and firms that are financially distressed (HIDISTRESS). Both discretionary and total accruals are significantly positively associated with growth. Leverage and LODISTRESS are not significant in either the discretionary or total accrual model.

The results that we report for the control variables are generally consistent with findings in prior studies. The negative association between accruals and operating cash flows that we find is consistent with prior research (Becker et al. 1998; Dechow et al. 1995; DeFond and Jiambalvo

1994 and Reynolds and Francis 2001), as is the negative association between accruals and leverage (Reynolds and Francis 2001). The negative association between accruals and size is similar to findings by Francis et al. (1999) and Reynolds and Francis (2001). The positive coefficient on growth is consistent with the predictions in Young (1999). Consistent with the findings of DeAngelo et al. (1994), firms that are highly financially distressed (HIDISTRESS) tend to use more income-decreasing accruals.

In columns 3 and 4 of Table 4, we present the results of the discretionary accrual and total accrual models that include the variable of interest, NONAUDIT. When NONAUDIT is added to the regression, the signs, parameter estimates, and significance of the control variables are virtually identical to the ones reported in the base model. Further, NONAUDIT is significantly positive for both dependent variables, i.e., both measures of accounting accruals (DA and TA) increase as the proportion of non-audit fees increase. This finding bolsters the univariate results that the ratio of non-audit fee to total fee is positively related to accruals.

Additionally, the inclusion of the NONAUDIT variable improves the explanatory power and fit of the models. In the discretionary accrual model, adjusted R^2 increases by 40.6% (from 0.069 to 0.097) and the p-value of the F statistic decreases from 0.003 to 0.001. However, the increase in R^2 in the total accrual model is marginal. Adjusted R^2 increases only by 2.7% (from 0.256 to 0.263) and the probability of F does not change.

These results are robust to an alternative specification of the variable NONAUDIT. In columns 5 and 6 the continuous variable NONAUDIT is replaced with a dichotomous variable, HINONAUD, that equals one if the proportion of non-audit to total fees is above the sample median and zero otherwise. Again, the signs, parameter estimates, and significance of the control variables are very similar to the ones reported in the base model. The significance of

HINONAUD is even higher than that for the continuous variable, NONAUDIT, with p-values of 0.002 and 0.011 for the DA and TA models, respectively. This suggests that there may be a “threshold” ratio of non-audit fees above which independence is compromised, and the dichotomous variable better measures that effect.

In sum, the results from univariate tests and multivariate models that control for other known determinants of earnings management show that firms with high proportions of non-audit fees tend to have higher accruals. Other things being equal, the level of accruals is related to earnings management. Therefore, our findings imply that firms paying high proportions of non-audit fees to their auditors manage earnings upwards to a greater extent than do firms paying low non-audit fees. However, consideration should be given to sampling and research design issues discussed in the conclusion section.

Sensitivity Analysis

We use several additional variable definitions and model specifications to check the robustness of our primary results. The supplementary analyses include a modification to the discretionary accrual estimation model, the use of an alternative measure of high non-audit fees, the addition of total fees as an explanatory variable, the use of an alternative measure of leverage, variations in the number of observations used to estimate the industry-specific parameters of the nondiscretionary accrual model, the inclusion of auditor firm dummies and the use of an accrual measure that excludes changes in inventory suggested by Thomas and Zhang (2001).

Dechow et al. (1995) propose a modification to the cross-sectional Jones model to correct for measurement errors that may arise when firms manipulate the timing of the recognition of revenues. Results using this modified cross-sectional Jones model are indistinguishable from

results reported in the paper, which confirms that our results are not sensitive to this alternative choice of discretionary accrual model.

A firm's demand for non-audit services may vary due to changes in its underlying economic circumstances. Firms in the same industry share common characteristics that may drive their demand for non-audit services. To the extent that demand for non-audit services varies across industries, our definition of high and low non-audit fee group, which is based on all firms in the sample, suffers from a measurement error problem. Thus, we redefine the high non-audit fee group to include firms whose proportion of non-audit fees is in the top 50% of their two-digit (and one-digit) SIC code. The regression results are qualitatively similar to the results reported, indicating that our main findings are robust to alternative measures of the variable of interest.

Reynolds and Francis (2001, 397) state that “fee dependency is inherent in auditor-client contracting and larger clients may create economic fee dependence for accounting firms – irrespective of whether the source of fees is auditing or consulting.” To the extent that firms with high non-audit fee ratios have systematically higher (or lower) total fees than firms with low non-audit fee ratios, our results may be ascribed to the omission of total fees as an explanatory variable. We address this concern by (1) substituting total fees scaled by lagged assets for the proportion of non-audit fees variable (NONAUDIT) in the regression, and (2) adding total fees scaled by lagged assets to the regression equation that includes NONAUDIT.

When we use scaled total fees in lieu of the non-audit fee ratio (NONAUDIT), its t-statistic is insignificant and all other variables in the model continue to have the same sign and significance as previously reported. The result suggests that accruals are not associated with the total fees (scaled by lagged assets).

When scaled total fees are included as an additional explanatory variable (in addition to NONAUDIT), the t-statistic is insignificant and all other variables in the model continue to have the same sign and significance as previously reported. More importantly, both specifications of the variable of interest, ratio of non-audit fee (NONAUDIT) and the dummy variable (HINONAUD), remain significantly positive suggesting that the provision of non-audit services may create an economic dependency (not captured by total fees) that is strong enough to lead auditors to increase their tolerance of the upward manipulation of earnings.

We use three alternative measures of leverage. First, we use a dummy variable that is set to 1 for firms that have above the median level of debt and 0, otherwise. Second, we use a dummy variable that is set to 1 if a firm's leverage is in the top 10% of firms in the sample (Reynolds and Francis 2001). Third, similar to Becker et al. (1998), we use an industry-based measure of high leverage because the optimal level of debt may be higher in some industries than others.

When we use all three alternative proxies, the results remain qualitatively identical to the results reported in the paper. In fact when we use both the firm level and industry level proxies that classify firms in the top decile of the sample (industry) as high leverage firms, the leverage dummy becomes positive and significant. This is consistent with the findings by Reynolds and Francis (2001) and Becker et al (1998).

As discussed earlier, our industry-specific parameter estimations use two-digit SIC codes with a minimum of at least five firms per industry. Using as few as five observations in the estimation may cause a concern that discretionary accruals are measured with error due to the sensitivity of parameter estimates to the number of observations. To address this concern, we conduct the analysis using only industries that have at least 8 firms. This procedure reduces the

number of firms to 169. Results using this sample are indistinguishable from the results reported in the paper suggesting that our findings are robust to the number of observations used in the estimation of the parameters of equation (2).

It is possible that the relationship between the non-audit services and accruals varies across audit firms. In order to address this concern, we include auditor dummies in the model. None of the auditor dummy variables are significant in either accrual models indicating that the relationship between non-audit services and accruals does not vary among the Big 5 audit firms.

Thomas and Zhang (2001) provide empirical evidence that suggests that much of the variation in discretionary accruals in the Jones Model is accounted for by changes in inventory. To see if the relation we document between non-audit service fees and accruals is driven by changes in inventory, we rerun our model using a total accrual measure that excludes inventory changes. The variable of interest (non-audit fees) is positive in both the discretionary and total accrual models, although its significance decreases in the total accrual model. This finding suggests that the positive association between non-audit fees and accruals reported in our paper are not driven by the way accruals are measured.

SUMMARY AND CONCLUSIONS

Concerns that auditors may be less than diligent in their attestation function and that earnings management is eroding the quality of financial reporting are popular topics among regulators, investors, and the public at large.¹¹ The SEC responded to these concerns by asking the POB to address “recent trends” in auditing and their effects on audit quality (POB 2001b). One such trend is the increase in non-audit services provided by auditors to their audit clients. The SEC’s concern is that the provision of non-audit services will reduce the independence of

the auditor, thereby leading to deterioration in the quality of audits and hence erosion of the quality of financial reporting. The SEC's revised rules on auditor independence require, among other things, client firms to disclose amounts paid to their external auditors for both audit and non-audit services. This new disclosure requirement offers an opportunity to examine empirically this concern of regulators.

Ideally, one would like to directly test the relation between non-audit service fees and auditor independence, auditor independence and audit quality and the link between audit quality and the quality of earnings. However, independence is not observable and size related independence and audit quality proxies used in prior research are not applicable in the context of this study. One therefore has to take an indirect route to examine the issue. We examine the relation between the proportion of non-audit fees and accruals and use our finding to infer the relation between non-audit service fees and the independence of auditors and hence the quality of earnings.

Using 2000 data for a sample of S&P 500 firms, we find that companies paying high proportions of non-audit fees to their independent auditors have income-increasing discretionary and total accruals. Our findings suggest that auditors that earn a higher proportion of their fees from the provision of non-audit services to their clients allow more income increasing accruals. To the extent that earnings management reflects the quality of earnings, and auditor's independence affects the quality of audits and hence the reported accounting numbers, the results suggest that the provision of non-audit services negatively impacts auditors' independence and the quality of financial reporting. However, the result may also be explained by correlated omitted variables that affect both the proportion of non-audit services and accruals that we did not control for in the empirical model.

Although sensitivity tests indicate that the results supporting our hypothesis are robust, these findings should be interpreted within the limitations of the study's research design. First, the non-audit fee classification mandated by the SEC may not accurately classify fees. Some audit-related fees, such as fees for the audit of a company's pension and benefit plans, are included in the non-audit fee category (Abbott et al. 2001). To the extent that this classification error systematically varies across firms, there is measurement error that could bias our coefficient estimates. However, we do not have an *a priori* reason to expect the classification error to affect the high and the low non-audit fee firms differently.

Second, measuring earnings management using discretionary accrual models is a joint test of the accrual model's being well specified and the presence of earnings management (Guay et al. 1996; Healy 1996; Dechow and Skinner 2000). If the accrual model we use is misspecified, it may not correctly classify accruals into their discretionary and nondiscretionary components. However, we find similar results when we use total accruals instead of discretionary accruals as our dependent variable. Since total accruals are not contaminated by errors of a misspecified accrual model, our results cannot be attributed to problems inherent in accrual estimation models.

Finally, our sample is limited to large, publicly-traded firms, thus generalization to smaller firms may not be appropriate. However, as discussed in section III, measurement error in the variable of interest, the ratio of non-audit fees to total fees, will be at a minimum in this sample. This is because in such a homogenous group, audit fees will be of comparable size. Thus, the variations in the non-audit fee ratio will be principally driven by non-audit fees, and hence offer a better measure of the effect of non-audit fees on accruals. A smaller firm could possibly have a large non-audit fee ratio but be of little influence because the total fees it pays

will be relatively inconsequential to the audit firm. Additionally, evidence on S&P 500 firms is important because they are high-profile, likely to represent companies paying the highest fees to their auditors, and thus represent the largest potential economic dependency for audit firms.

We document that client firms paying high proportions of non-audit fees to their auditors tend to have higher (income-increasing) levels of accruals, both total and discretionary. This suggests that auditors are less diligent in curbing income-increasing earnings management for client firms from whom they receive high proportions of non-audit fees. We cannot, however, rule out the possibility that the result is driven by correlated omitted variables that affect both the proportion of non-audit fees and accruals. Moreover, we have not looked at the market's reaction to the new information on the breakdown of fees. Now that this information is the public domain, we expect users of financial statements to factor in the possibility that non-audit services may reduce the independence of auditors and hence the quality of earnings in their pricing decisions. We leave this to future research.

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TABLE 1: SAMPLE SELECTION PROCEDURES

<i>Panel A: Summary of sample selection procedures</i>	
Selection criteria	No. of firms
S&P 500 firms disclosing audit fees by September 1, 2001	408
Firms eliminated:	
Data unavailable	(35)
Banks, Insurance, REIT	(66)
Utilities	(35)
Firms with auditor changes in 1999 and 2000	(5)
Firms with non Big-5 auditors in 1999 or 2000	(5)
Two-digit sic codes with less than five firms each	(55)**
Final sample for analyses	207

** Four outlying observations were deleted, resulting in 203 firms for the analyses reported in the paper.

TABLE 2: DESCRIPTIVE STATISTICS FOR SAMPLE FIRMS

Variable	N=203	Minimum	Mean	Median	Maximum	Std Dev
Total fees	\$Mil	0.435	9.938	4.882	83.600	12.975
Audit fees	\$Mil	0.189	2.422	1.500	18.300	2.523
Non-audit fees	\$Mil	0.046	7.516	3.153	65.300	11.107
Ratio of non-audit fees to total fees		0.078	0.663	0.684	0.941	0.166
Income before extraordinary items/lagged total assets		-1.175	0.091	0.083	0.867	0.134
Operating cash flow/lagged total assets		-0.074	0.149	0.129	0.553	0.101
Total debt/lagged total assets		0.000	0.248	0.258	0.713	0.141
Log of net revenues		5.727	8.613	8.594	12.236	1.194
Log of total assets		6.476	8.740	8.651	11.912	1.138
Market to book		0.815	3.098	2.154	14.575	2.598
Altman's Z score		0.446	6.036	3.693	39.11	6.924
Discretionary accruals/lagged total assets		-0.192	-0.002	-0.003	0.186	0.053
Absolute value of discretionary accruals/lagged total assets		0.000	0.040	0.028	0.365	0.047
Total accruals/lagged total assets		-0.259	-0.047	-0.050	0.159	0.061

TABLE 3: T-TESTS FOR DIFFERENCES IN MEANS

	A (N=102)		B (N=101)		C
	Firms with above median non-audit fees/total fees ratio		Firms with below median non-audit fees/total fees ratio		Tests of null (A=B)
	Mean	Standard Deviation	Mean	Standard Deviation	t-statistic (p-value)
Discretionary accruals*	0.008	0.060	-0.012	0.045	2.64 (0.009)
Absolute value of discretionary accruals*	0.043	0.042	0.031	0.034	2.25 (0.025)
Nondiscretionary accruals*	-0.046	0.042	-0.044	0.030	-0.47 (0.642)
Total accruals*	-0.039	0.071	-0.056	0.048	2.01 (0.046)
Operating cash flows*	0.143	0.095	0.155	0.106	-0.86 (0.390)
Leverage (total debt/total assets)	0.250	0.147	0.245	0.136	0.27 (0.786)
Size (log of total assets)	8.817	1.233	8.663	1.034	0.96 (0.339)
Income before extraordinary items*	0.097	0.083	0.094	0.084	0.29 (0.773)

* scaled by lagged total assets

TABLE 4: REGRESSION RESULTS USING CROSS-SECTIONAL JONES MODEL FOR ACCOUNTING ACCRUALS

N =203	Pred Sign	Dependent Variable					
		Base Model *		C/S Jones		C/S Jones	
		DA (1)	TA (2)	DA (3)	TA (4)	DA (5)	TA (6)
Intercept	?	0.076 (0.019)	0.073 (0.025)	0.043 (0.202)	0.052 (0.139)	0.069 (0.029)	0.068 (0.036)
NONAUDIT	+			0.057 (0.005)	0.039 (0.045)		
HINONAUD	+					0.021 (0.002)	0.017 (0.011)
OCF	-	-0.162 (0.006)	-0.397 (0.001)	-0.154 (0.001)	-0.392 (0.001)	-0.157 (0.001)	-0.393 (0.001)
LEVERAGE	?	-0.002 (0.936)	-0.035 (0.240)	0.008 (0.783)	-0.028 (0.348)	-0.003 (0.928)	-0.035 (0.232)
SIZE	?	-0.008 (0.028)	-0.009 (0.014)	-0.009 (0.011)	-0.009 (0.008)	-0.008 (0.015)	-0.009 (0.009)
GROWTH	?	0.004 (0.036)	0.009 (0.001)	0.004 (0.030)	0.009 (0.001)	0.004 (0.025)	0.009 (0.001)
HIDISTRESS	?	-0.029 (0.032)	-0.034 (0.015)	-0.029 (0.032)	-0.033 (0.015)	-0.030 (0.023)	-0.035 (0.012)
LODISTRESS	?	0.009 (0.352)	-0.003 (0.741)	0.009 (0.337)	-0.003 (0.748)	0.011 (0.234)	-0.001 (0.891)
Adj R ²		0.069	0.256	0.097	0.263	0.104	0.272
Prob F		0.003	0.001	0.001	0.001	0.001	0.001

Probabilities of t-statistics are in parentheses. P-values are one-tailed for signed predictions and two-tailed otherwise.

DA = discretionary accruals;

TA = total accruals;

NONAUDIT = ratio of non-audit fees to total fees (audit + non-audit);

HINONAUD = 1 if the ratio non-audit fees/total fees is above the median, 0 otherwise;
OCF = operating cash flow scaled by lagged total assets;
LEVERAGE = total debt/total assets;
SIZE = log of total assets;
GROWTH = market value of equity/book value of assets;
HIDISTRESS = 1 if Altman Z score is less than 1.8, 0 otherwise;
LODISTRESS= 1 if Altman Z score is greater than 3.0, 0 otherwise.

* Specification test is rejected for the base models (columns 1 and 2) at p-values of 0.054 for DA and 0.082 for TA.

ENDNOTES

¹ The POB's Charter was expanded in February 2001. They oversee both the SEC Practice Section and the Auditing Standards Board (ASB), and had authority over the Independence Standards Board (ISB) before the ISB was dissolved.

² Reynolds and Francis (2001) mention this possibility.

³ Accounting Series Release No. 250, issued in 1978 and repealed in early 1982, required public companies to disclose non-audit service fees as a percentage of audit fees (POB 2000a, 205-206). However, little empirical research has been done using the data from this earlier time period. Most prior empirical research on audit and non-audit fees uses voluntary information obtained from questionnaires.

⁴ Throughout the paper, we define independence as the quality related to the auditor's willingness to report an error or irregularity, given that one has occurred (Watts and Zimmerman 1986, 341). Thus, we consider only independence in fact, not in appearance.

⁵ Hereafter we refer to this model as the "cross-sectional Jones model."

⁶ Firms in regulated industries have incentives to decrease earnings. These firms are excluded from our sample.

⁷ We identify influential data points by examining DFFITS, DFBETAS, and studentized residuals (Belsley et al. 1980).

⁸ In the sensitivity analysis section of the paper, we use dummy variables to define the high and the low non-audit fee group relative to the median of firms in an *industry* (both two digit and one digit SIC code). The results are substantially the same.

⁹ Research finds that accruals are related to whether the firm is audited by a Big 5 firm (Becker et al. 1998; Reynolds and Francis 2001; Francis et al. 1999). We omit the Big 5 dummy variable because each of our firms is audited by a Big 5 firm.

¹⁰ Because we focus on the S&P 500, the audit and non-audit service fees for firms in our sample are much larger than those in Frankel et al. (2001), who report mean (median) audit fees of \$499,000 (\$166,000) and mean (median) non-audit service fees of \$1,150,000 (\$166,000). The mean of 47% and median of 48% that they report for non-audit fees to total fees is also much smaller than that in our sample.

¹¹ For example, see Byrnes (1999), McNamee et al. (2000), and Tie (2000).