

The Effects of Recurring and Nonrecurring Tax, Audit-Related, and Other Nonaudit Services  
on Auditor Independence

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## Abstract

This study investigates whether the frequency of auditor-provided nonaudit services (NAS) affects auditor independence. It extends previous work by Kinney, Palmrose, and Scholz (2004) by distinguishing recurring and nonrecurring NAS when examining the association between auditor-provided NAS and restatements. The results indicate that recurring tax NAS is the only category-frequency combination negatively associated with restatements. This negative association is consistent with recurring tax services, such as completing the audit client's annual tax return, providing auditors with knowledge spillovers that improve auditor independence. In contrast, nonrecurring tax, both audit-related frequencies, and recurring other NAS are positively associated with restatements. Nonrecurring other NAS is not statistically significant. For both tax and audit-related NAS, nonrecurring NAS are associated with higher likelihoods of restatement than their recurring NAS counterparts. These differences suggest that nonrecurring services, such as tax planning, are a greater threat to auditor independence than recurring services. This result is consistent with the PCAOB's (2005) recent decision to prohibit auditors from jointly providing certain tax consulting services while continuing to allow them to jointly provide tax compliance services. We also find that the type of restatement is an important consideration. Restatements associated with aggressive accounting support this study's hypotheses, but restatements associated with unintentional errors fail to do so. Accordingly, researchers should consider the reasons for restatements rather than use all restatements interchangeably.

**Keywords:** Auditor independence, Nonaudit services, Restatements

**JEL Descriptors:** M40, M41, M42

# The Effects of Recurring and Nonrecurring Tax, Audit-Related, and Other Nonaudit Services on Auditor Independence

## 1. Introduction.

For more than thirty years, legislatures and regulators have debated the effects of the joint provision of audit and nonaudit services (NAS) on auditor independence (Metcalf Committee 1976; Cohen Commission Report 1978; Levitt 2000; U.S. House of Representatives 2002; Public Company Accounting Oversight Board 2005). Researchers have investigated the issue analytically and empirically. While refinements in theory and methodology have contributed to our understanding, questions about the relationship between NAS and auditor independence remain. An important question is whether the relationship is affected by the frequency of auditor-provided NAS.

DeAngelo's (1981) model of audit pricing describes incumbent auditors as possessing comparative cost advantages associated with audit start-up and switching costs. She suggests that these cost advantages help incumbent auditors earn quasi-rents in future years. The intertemporal nature of this relationship results in an increase in auditor-client economic bonding and a potential decrease in auditor independence. Simunic (1984) and Beck, Frecka, and Solomon (1988a) incorporate auditor-provided NAS into the auditor-client relationship.<sup>1</sup> The joint provision of services increases the economic bond described by DeAngelo (1981) and potentially further impairs independence. The joint provision of NAS can also yield knowledge spillovers that generate audit cost savings and affect the audit (Simunic 1984; Beck et al. 1988a, Arrunada 1999; Panel on Audit Effectiveness 2000). Simunic (1984) assumes that NAS are

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<sup>1</sup> Some authors, including Simunic (1984) and Beck et al. (1988a), refer to management advisory services (MAS) rather than nonaudit services. We treat the two terms (MAS and NAS) as interchangeable.

homogeneous in the ability to generate knowledge spillovers, but he notes that additional insights might be gained by distinguishing specific types of NAS.

Archival studies that examine the effects of NAS on auditor independence generally rely on single-period, homogeneous measures of NAS (e.g., Frankel, Johnson, and Nelson 2002; Ashbaugh, LaFond, and Mayhew 2003; Chung and Kallapur 2003; DeFond, Raghunanandan, and Subramanyam 2002; Raghunanandan, Read, and Whisenant 2003; Reynolds, Deis, and Francis 2004). Research using an experimental markets methodology uses a similar approach, seeding their instrument with a single period total NAS fee (Dopuch, King, and Schwartz 2003). Kinney, Palmrose, and Scholz (2004) depart from this norm. They investigate the effects of five NAS categories on auditor independence. Finding a negative relationship between restatements and tax services and a positive one between restatements and unspecified fees, they suggest that theirs is a more powerful approach that is better able to disentangle the effects of specific types of NAS on auditor independence.

While Kinney et al. (2004) find two NAS categories are associated with restatements, Schneider, Church, and Ely (2006) propose that models should include both categories and frequencies of NAS to examine how these interact with auditor independence. The recurring nature of certain auditor-provided non-audit services is expected to affect the auditor-client economic bond (Beck et al. 1988a; Chung and Kallapur 2003). Whether a given NAS category recurs can also proxy for the type of non-audit service within a NAS category, especially in the case of tax NAS. Tax NAS includes tax compliance and tax planning. The most common auditor-provided NAS is the completion of their audit client's annual tax return, and tax compliance services is frequently described as the NAS that generates high knowledge spillovers that improve the audit (Arrunada 1999; U.S. Chamber of Commerce 2003; Francis 2004;

PCAOB 2005; Gleason and Mills 2007). Tax planning is more likely to be nonrecurring with relatively few knowledge spillovers. To the extent that economic bonding, knowledge spillovers, and the sharing of cost savings differ between services associated with one frequency or the other, distinguishing recurring from nonrecurring auditor-provided NAS is expected to be associated with differences in auditor independence (Beck, et al. 1988a and 1988b; DeBerg, Kaplan, and Pany 1991; Parkash and Venable 1993; Abbott, Parker, Peters, and Rama 2007; Schneider, et al. 2006). To examine how NAS category and frequency interact with auditor independence, we model financial restatements as a function of recurring and nonrecurring frequencies for each NAS category.<sup>2</sup>

Our results show that auditor-provided recurring tax services have a significant negative association with restatements. This result is consistent with high knowledge spillovers from recurring tax services helping to reduce the auditor-client economic bond and improve auditor independence. The estimated coefficient on nonrecurring tax is not significant using the full sample. It is positive and statistically significant when we conduct a more powerful test only using restatements associated with aggressive accounting. In all of our tests, the difference between recurring and nonrecurring tax services is statistically significant. These findings extend Kinney et al. (2004) by providing evidence that it is recurring tax services, and not nonrecurring tax services, that are associated with improved auditor independence. Our results also support the notion that certain tax services, such as completing the client's annual tax return, is not a threat to auditor independence.

Results for the two remaining NAS categories show only positive associations with restatements. While recurring and nonrecurring audit-related NAS are both positively associated

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<sup>2</sup> Auditor independence is commonly described in terms of two components: independence in fact and independence in appearance. By focusing on financial restatements, our study focuses on independence in fact.

with restatements, they are different in magnitude. A test of differences reveals that recurring audit-related fees is associated with a lower probability of restatement than nonrecurring audit-related services. A slightly different pattern emerges from the other NAS engagements. Both recurring and nonrecurring other NAS are positively associated with restatements, but the difference between them is not significant.

Consequently, tax, audit-related, and other NAS results provide evidence that NAS are not homogeneous. We reach this conclusion using a large sample of restatements that occur for a wide variety of reasons and using a smaller sample of restatements associated with aggressive accounting. We do not find the same results when we limit the restatements to those associated with unintentional errors, leading us to conclude that it is important to consider the reasons for restatements when investigating their effect on auditor independence.

The remainder of this paper is organized as follows. Section 2 presents the motivation for the study and develops the hypotheses. Section 3 describes research design, including the sample, definitions of variables and their descriptive statistics, and a description of the model used to test our hypotheses. Section 4 reports the empirical results and results of sensitivity testing, and section 5 is the conclusion.

## 2. Motivation

### 2.1. Review of prior research

Modeling the auditor-client relationship as a bilateral monopoly, DeAngelo (1981) demonstrates that auditors can earn quasi-rents after the initial engagement year. Incumbent auditors have start-up and switching cost advantages over their competitors. The multi-period nature of the auditor-client relationship, coupled with cost advantages, gives incumbent auditors an incentive to compromise their independence in order to retain clients. It is this set of

circumstances that creates an auditor-client economic bond and underscores the intertemporal-nature of the auditor-client relationship. Simunic (1984) introduces nonaudit services into the relationship. He suggests that quasi-rents from the joint provision of services increases the auditor-client economic bond because auditors become dependent on their clients for yet another source of income and therefore face higher expected losses from truthful reporting. He also notes that jointly providing services may provide knowledge spillovers, including efficiencies, economies of scale, and a better understanding of the client's systems. These knowledge spillovers can result in audit cost savings, but their effect on the auditor-client economic bond depends on whether the auditor shares the cost savings with their clients. If the auditor retains the cost savings, the auditor's quasi-rents and economic bond increase. In competitive environments, the auditor may be more likely to share the cost savings which increases the incumbent auditor's value to the client. Dismissal threats become less credible and dismissal becomes less costly resulting in increased auditor independence. Simunic's (1984) empirical results document higher audit fees among firms that purchase NAS from their auditors which he interprets as evidence of knowledge spillovers from the joint production of services. Palmrose (1986) finds that audit fees are higher when clients pay for NAS regardless of whether they purchase the services from their auditors or from others. Her results suggest that Simunic's (1984) empirical results need to be interpreted cautiously and demonstrate the difficulty of documenting evidence of knowledge spillovers in empirical investigations.

Beck et al. (1988a) differentiates between recurring and nonrecurring NAS engagements when modeling the effects of jointly provided services on auditor independence. Similar to Simunic (1984), they conclude that NAS engagements generally increase the auditor-client economic bond while acknowledging that knowledge spillovers can affect independence. Beck

et al. (1988a) suggest that recurring NAS engagements are more likely to generate knowledge spillovers that increase auditor independence. Chung and Kallapur (2003) concur. They suggest that some NAS services result in economies of scope and generate cost savings. The expectation that certain NAS recur increases an auditor's incentives to share cost savings with the client. To the extent savings are passed to the client, the auditor's economic bond is decreased.

Empirical research that distinguishes recurring or nonrecurring NAS has focused on whether the frequency of auditor-provided NAS is associated with auditor and client characteristics, such as the auditor's tenure (Beck et al. 1988b; DeBerg, Kaplan, and Pany 1991; Parkash and Venable 1993; and Abbott, Parker, Peters, and Rama 2007). Most of these studies assume NAS categories are synonymous with one frequency or the other. They define all tax, information systems, personnel, and pension NAS as recurring and all remaining NAS categories as nonrecurring. Abbott et al. (2007) is an exception. They classify internal audit services as either routine or nonroutine based on client-specific survey responses. Abbott et al. (2007) show that firms with independent, active, and expert audit committees are less likely to outsource routine internal auditing activities to the external auditor. While they consider only one nonaudit service (i.e., internal audit services), and that service is proscribed by the Sarbanes-Oxley Act of 2002 (SOX), they demonstrate that a single NAS category can be routine for some clients and nonroutine for others.<sup>3</sup>

The majority of NAS research uses audit and nonaudit fee data that has been publicly available since 2001 to assess the effect of fees on the quality of financial reporting.<sup>4,5</sup> Most of

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<sup>3</sup> The distinction between recurring and nonrecurring relates to the frequency of jointly performing such services across time. DeBerg et al. (1991) recognize that by not using time-series data, their ability to evaluate the relationship between NAS frequency and auditor changes is limited.

<sup>4</sup> Since 2001, the U.S. Securities and Exchange Commission (SEC) has required public disclosure of audit and nonaudit service fees in companies' proxy statements. In 2003, the SEC issued FFR No. 68 which revised the fee disclosure rules and resulted in four fee disclosures: audit fees and three NAS fee categories (i.e., tax, audit-related, and other). The SEC suggests that these fee categories would be useful to investors.

these studies investigate the effect of fees on discretionary accruals to assess auditor independence. Despite the use of more recent fee data and more direct tests of financial reporting quality, the results are mixed. Frankel, Johnson, and Nelson (2002) find more earnings management by firms who hire their auditors for the joint provision of services. Ashbaugh, LaFond, and Mayhew (2003), Chung and Kallapur (2003), and Reynolds, Deis, and Francis (2004) find no association. Other studies conclude that there is a positive association between fees and auditor independence (Reynolds and Francis 2001; Geiger and Rama 2003; and Antle, Gordon, Narayanamoorthy, and Zhou 2006).

The limitations of earnings management research, especially discretionary accrual models, are documented and well-known (McNichols 2000). We choose to use restatements as our measure of financial reporting quality and proxy for auditor independence. Restatements strike at the heart of financial reporting quality. Financial markets rely on the expertise and integrity of independent auditors to ensure this quality and restatements are commonly associated with audit failures. Using restatements allows us to investigate the effect of NAS on auditor independence in a reliable and meaningful manner and for a large cross-section of firms.

Studies that use restatements to examine the effects of NAS on auditor independence include Raghunandan, Read, and Whisenant (2003), Ferguson, Seow, and Young (2004), and Kinney et al. (2004). Raghunandan et al. (2003) do not find significant differences in abnormal NAS fees between restatement and control firms. Ferguson et al. (2004) report that restatements are more likely among U.K. firms that hire their auditors to provide NAS. Kinney et al. (2004) investigate whether individual NAS categories are associated with financial restatements and a

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<sup>5</sup> This line of questioning is in contrast to the research questions examined in NAS studies that distinguish recurring and nonrecurring fees (e.g., Beck et al. 1988b; DeBerg et al. 1991; Parkash and Venable 1993; and Abbott et al. 2007). The recur/nonrecur studies examine the circumstances where NAS are jointly contracted. They suggest that the quality of financial reporting may be affected by clients' choices to hire their auditors for NAS. This more recent line of inquiry conducts direct tests of whether aggregate NAS fees affect the quality of financial reports.

lack of auditor independence. Using confidential survey data, they classify fees into six categories: audit fees, financial information systems design and implementation, internal audit, audit-related, tax, and unspecified fees.<sup>6</sup> Kinney et al. (2004) find a negative association between restatements and auditor-provided tax services, but a positive one between restatements and unspecified fees. Their results are consistent with auditor-provided tax services increasing auditor independence, but unspecified services having the opposite effect. In supplemental tests, they aggregate the NAS categories and find that the effects of tax and unspecified fees cancel one another. An important contribution of their study is their evidence that individual NAS categories have different relationships with auditor independence.

Although Kinney et al. (2004) examine NAS categories, they do not distinguish between recurring and nonrecurring frequencies. Schneider et al. (2006) review the NAS literature and conclude that ignoring whether nonaudit services are recurring or nonrecurring “muddies the waters making it difficult to interpret empirical results”. They call for research that examines which types of NAS are most problematic. They propose that models examining how the size, category, and frequency of NAS interact would greatly enhance the ability of research to systematically study their effects on independence empirically.

Several sources suggest that completing a client’s annual tax return is the NAS most likely to generate knowledge spillovers that improve the audit (Arrunada 1999; and the U.S. Chamber of Commerce 2003; Francis 2004; Gleason and Mills 2007). The contrast in expected knowledge spillovers between tax compliance and tax planning, coupled with the likelihood that

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<sup>6</sup> Despite the SEC’s (2003) requirement that NAS fees be partitioned into three categories, few studies distinguish NAS categories. Kinney et al. (2004) examine an investigation period that precedes the SEC’s requirements that firms disclose their NAS fees. Regardless, their confidential survey data allows them to distinguish audit fees and five NAS categories. Besides our study, only Huang, Mishra, and Raghunandan (2007) use publicly available NAS data to examine the individual effects of the current three NAS categories on financial reporting quality. They conclude that abnormal accruals are less likely when auditors jointly provide either tax or other NAS.

these two tax services are associated with different frequencies, suggest that distinguishing NAS frequency may be particularly useful in the tax setting. Recent regulatory changes affecting auditor-provided tax NAS add to the importance of distinguishing services within the tax category. The PCAOB (2005) recently adopted rules prohibiting certain tax consulting services from being provided by a client's auditor. This change was designed to improve auditor independence. The PCAOB decided not to prohibit auditors from preparing their clients' annual tax returns on the basis that such a prohibition is not necessary to protect auditor independence.<sup>7</sup> Even though auditor-provided tax compliance work remains allowed, Maydew and Shackelford (2006) note the chilling effect that SOX has had on the joint provision of audit and tax services. It is possible that requiring audit committee preapproval of auditor-provided tax services discourages firms from hiring the service-provider best suited for their tax compliance work.

Compared to tax NAS, relatively few studies suggest that audit-related and other NAS are associated with knowledge spillovers and audit quality.<sup>8</sup> Joe and Vandervelde (2007) conclude that non-tax NAS increase auditors' client risk assessments but decrease their identification of factors associated with fraud. Knechel and Sharma (2009) use audit report lags as a measure of audit efficiency and find evidence that audit-related NAS are associated with increased audit efficiency prior to SOX and decreased efficiency after SOX. Certain services within these categories, such as audits of employee benefit plans, are more likely to be recurring than other

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<sup>7</sup> The SEC approved these rules in 2006 (SEC 2006). The new rules ban the company's auditor from providing tax services related to planning or opining in favor of confidential transactions or aggressive interpretations of tax laws, setting contingent fees, and providing tax services to members of management (and their immediate family) who have a role in financial reporting.

<sup>8</sup> The SEC (2003) defines audit-related fees as payments for assurance and related services by the principal accountant that are reasonably related to the performance of the audit or review of the company's financial statements and are not reported as audit fees. Audit-related services include employee benefit plan audits, accounting consultations and audits in connections with acquisitions, due diligence related to mergers and acquisitions, internal control reviews, attest services that are not required by statute or regulation, and consultations concerning financial accounting and reporting standards. The SEC defines other fees as all other fees for other products and services provided by the principal accountant (SEC 2003). Examples include consulting assignments on how to improve a client's customer service organization and investigations into how to improve the operating performance of a client's facilities.

services (e.g., due diligence related to mergers). By distinguishing NAS frequencies, we allow bonding, knowledge spillovers, and the sharing of cost savings to vary within NAS categories and we provide insight into the effects of recurring and nonrecurring NAS on auditor independence. Given a limited ability to observe knowledge spillovers, we consider the use of frequency an important step in furthering our understanding of the effect of NAS on auditor independence.

## 2.2. Hypotheses

We investigate whether auditor independence is affected by the frequency of auditor-provided NAS. We distinguish frequency according to whether fees for each NAS category (i.e., tax, audit-related, and other) are recurring or nonrecurring on a client-specific basis.

Distinguishing the frequency of jointly-provided NAS leads to our first two hypotheses, stated in null form:

*H1: Recurring NAS fees are not associated with financial restatements.*

*H2: Nonrecurring NAS fees are not associated with financial restatements.*

We test both hypotheses using each of the three NAS categories. For example, a positive relationship between recurring tax services and restatements would be evidence that jointly providing tax services on a recurring basis is associated with reduced auditor independence. A negative relationship would provide evidence that auditor independence is improved. We use two-tailed tests for each test.<sup>9</sup>

Using three NAS categories and two frequencies, we test hypotheses 1 and 2 to determine whether category and frequency combinations individually affect financial reporting quality. It

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<sup>9</sup> Kinney et al. (2004), Raghunandan et al. (2003), and Robinson (2008) report improvements in auditor independence when the auditor performs tax services. Cook, Huston, and Omer (2008) reach the opposite conclusion using reported effective tax rates. None of these studies distinguish recurring and nonrecurring tax services. By distinguishing frequency, we are able to determine whether a positive or negative association is related to recurring &/or nonrecurring tax fees.

is possible that recurring and nonrecurring frequencies for a given category could be statistically significant but indistinguishable one from the other. Our next question is whether recurring NAS have different relationships with auditor independence than their nonrecurring counterparts. We address this question with our third hypothesis, stated in null form.

*H3: The association between recurring NAS of a given category and financial restatements is the same as the association between nonrecurring NAS of the same category and financial restatements.*

We test this hypothesis by determining whether the estimated coefficients for recurring NAS are significantly different from their nonrecurring counterparts. We conduct this test for each of the three fee categories, tax, audit-related, and other NAS. Statistically significant differences provide evidence that distinguishing recurring from nonrecurring NAS is important when investigating auditor independence. They also provide insight into which frequency has the stronger effect. Again, we use two-tailed tests.

### 3. Research Design

#### 3.1. Sample

We identify restatements of financial reports for 2003 through 2006 using the Audit Analytics database. This database includes all SEC registrants that have announced a restatement of their financial statements. We include restatements occurring for accounting rule application failures, financial fraud, irregularities, and misrepresentations. We exclude restatements that Audit Analytics reports as non-financial statement disclosures, omissions, or corrections and errors involving clerical applications. We also use Audit Analytics as the source of auditor, audit fee, and NAS fee data for this study. Remaining data, including financial statement data, are gathered from the Compustat database.

Table 1 panel A summarizes the sample selection process and reports sample attrition for both restatement and nonrestatement observations. Data requirements include audit and NAS fee from the Audit Analytics database and control variable data from Compustat. We require that nonrestatement firms do not restate their financial statements in any of our investigation years (Raghunandan et al. 2003; Kinney et al, 2004). These requirements result in a sample of 23,334 firm year observations, including 4,968 restatement and 18,366 nonrestatement observations. Additional screens are necessary to examine the effect of NAS frequency on financial reporting quality. We require two consecutive years of data to determine whether fees are recurring or nonrecurring. As a result, the sample is reduced to 4,713 restatement and 16,894 nonrestatement observations. We refer to this sample as our full sample. The full sample is used to estimate equation (1) described in section 3.3. Table 1 panel B partitions the sample by year and across restatement and nonrestatement observations. It shows a decrease in the number of sample restatements in 2005 and 2006.

Insert Table 1

### 3.2. Variable definitions and descriptive statistics

We use NAS fee data from consecutive time periods to identify whether fees for each NAS category are recurring or nonrecurring. Using a two-year window to determine whether the joint provision of services recur minimizes the loss of data and reduces survivorship bias.<sup>10</sup> This is also consistent with Beck et al. (1988b). They evaluate the validity of their recurring and nonrecurring classifications using two consecutive years of fee data. In our study, clients that pay their auditor for a specific NAS category in both the current year and the following year are considered to have a recurring engagement for that NAS category. Clients that incur a fee in the current year but do not retain their auditor for that same NAS category in the next year are

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<sup>10</sup> In robustness testing, we extend this to three years.

classified as having a nonrecurring engagement for that category. If the client does not pay its auditor for a NAS category in the current year, it has neither a recurring nor nonrecurring relationship in the given year and belongs in the sample as part of the control group.

Table 2 summarizes the descriptive statistics for the fee variables and control variables. Panel A reports variable means, medians, and p-values for differences in means and medians between restatement and nonrestatement observations. Consistent with Kinney and McDaniel (1989) and DeFond and Jiambalvo (1991), we find that restatement firms are smaller in terms of total assets than nonrestatement firms. However, they have larger audit and NAS fees which may reflect higher audit risks and more audit complexity among restatement firms (Kinney et al. 2004; Hay, Knechel, and Wong 2006). Several observations have one or more NAS categories with zero fees making it difficult to interpret the means and medians reported in panel A.

Table 2 panel B reports the frequency of nonzero recurring and nonrecurring fees for each category. For both the restatement and nonrestatement observations, tax services are the most common NAS followed by audit-related and then other NAS. The majority of NAS fees qualify as recurring, but a substantial number of nonrecurring NAS fees occur in each category. Among restatement firms, recurring and nonrecurring tax services are contracted by 61.6 percent and 9.7 percent of the sample, respectively. The nonrestatement observations are more likely to have recurring tax services and less frequent nonrecurring tax services (i.e., 65.9% and 7.5%, respectively). The frequency differences between restatement and nonrestatement observations are less distinct among the audit-related and other NAS. Panel C reports the mean and median fees for the nonzero fee observations. The descriptive statistics show that recurring fees tend to be higher than nonrecurring fees. Unlike Kinney et al. (2004), our NAS fees are smaller than the audit fees. This difference reflects the decrease in auditor-provided NAS since the passage of

SOX. Whether recurring and nonrecurring NAS for each category are associated with restatements in our investigation period is tested in the next section.

Insert Table 2

### 3.3. Model

Analytical models show that fees paid to the auditor potentially affect auditor independence (DeAngelo 1981; Simunic 1984; and Beck et al. 1988a). We empirically investigate the relationship between fees paid to the audit firm and auditor independence using prior research as a guide. Kinney et al. (2004) use restatements modeled as a function of six fee categories and a single control variable. We modify their model using the three NAS fee categories in use since 2003. We distinguish recurring and nonrecurring NAS engagements to investigate how NAS categories and frequencies interact with restatements. We include audit fees and other variables used in prior research to control for factors associated with financial restatements other than our variables of interest. The following multivariate logistic model is used to test our hypotheses.

$$\begin{aligned}
 \text{RESTATE} = & \beta_0 + \beta_1\text{AUDIT\_FEE} + \beta_2\text{TAX\_RECUR} + \beta_3\text{TAX\_NON} + \beta_4\text{AR\_RECUR} \\
 & + \beta_5\text{AR\_NON} + \beta_6\text{OTHER\_RECUR} + \beta_7\text{OTHER\_NON} + \beta_8\text{ACQUIS} \\
 & + \beta_9\log(\text{ASSETS}) + \beta_{10}\text{BM} + \beta_{11}\text{LEV} + \beta_{12}\text{FIN} + \beta_{13}\text{YR2004} + \beta_{14}\text{YR2005} \\
 & + \beta_{15}\text{YR2006} + \varepsilon
 \end{aligned} \tag{1}$$

where:

RESTATE = an indicator variable equal to 1 if the company restated either its Form 10-K or Form 10-Q for the given year, and 0 otherwise;

AUDIT\_FEE = the natural log of audit fees for financial statement audit and review services;

TAX\_RECUR = the natural log of tax NAS fees provided by the auditor if the auditor provides tax NAS to the client in the current and consecutive years, and 0 otherwise;<sup>11</sup>

TAX\_NON = the natural log of tax NAS fees provided by the auditor if the auditor provides tax NAS to the client in the current year but not in the following year, and 0 otherwise;

AR\_RECUR = the natural log of audit-related NAS fees provided by the auditor if the auditor provides audit-related NAS to the client in the current and consecutive years, and 0 otherwise;

AR\_NON = the natural log of audit-related NAS fees provided by the auditor if the auditor provides audit-related NAS to the client in the current year but not in the following year, and 0 otherwise;

OTHER\_RECUR = the natural log of other NAS fees provided by the auditor if the auditor provides other NAS to the client in the current and consecutive years, and 0 otherwise;

OTHER\_NON = the natural log of other NAS fees provided by the auditor if the auditor provides other NAS to the client in the current year but not in the following year, and 0 otherwise;

ACQUIS = an indicator variable equal to 1 if the company acquired another firm during the fiscal year, and 0 otherwise;

log(ASSETS) = the natural log of total assets;

BM = the book value of common equity divided by market capitalization.

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<sup>11</sup> Many firms report that they have zero NAS fees for one or more NAS categories. The natural log of zero is undefined so we code zero fee observations as the natural log of one which equals zero.

LEV	= total liabilities divided by total assets;
FIN	= an indicator variable equal to 1 if the company issued more than \$10 million of debt & equity during the fiscal year, and 0 otherwise;
YR2004	= an indicator variable equal to 1 if the year is 2004, and 0 otherwise;
YR2005	= an indicator variable equal to 1 if the year is 2005, and 0 otherwise;
YR2006	= an indicator variable equal to 1 if the year is 2006, and 0 otherwise.

The data for our variables of interest (i.e., restatements and NAS fees) are described in section 3.

We use the natural logarithm of audit and nonaudit fees to reduce heteroskedasticity and decrease the effect of outliers. Besides fee variables, the model includes several control variables to account for the effects of factors other than audit fees and NAS fees that likely affect the occurrence of financial restatements.<sup>12</sup> Kinney et al (2004) finds that acquisitions increase the probability of a restatement. We expect the estimated coefficient for ACQUIS to be positive. Kinney and McDaniel (1989) and DeFond and Jiambalvo (1991) use the log of client assets ( $\log(\text{ASSETS})$ ), book-to-market ratio (BM), and leverage (LEV) to show that restating companies tend to be smaller, have slower growth, and carry more debt. We expect the estimated coefficients for the size variable to be negative and coefficients for the other two variables to be positive. Richardson, Tuna and Wu (2002) find that companies with restated earnings have accessed external capital markets to raise additional cash around the time of the earnings manipulation. We include an external financing variable (FIN), and we expect the estimated coefficient for that variable to be positive. We also include year-specific controls.

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<sup>12</sup> We winsorize book-to-market (BM) and leverage (LEV) at the 1 percent and 99 percent levels. Logistic regressions based on winsorized and unwinsorized data generate qualitatively similar results.

## 4. Results

### 4.1. The association between NAS and restatements

We begin by estimating a version of equation (1) that does not distinguish recurring and nonrecurring fee variables. This establishes a benchmark and facilitates comparisons to Kinney et al. (2004). In this version of the model, restatements are a function of audit fees, tax fees, audit-related fees, other fees, and the one control variable used by Kinney et al. (2004). In table 3, we report the logistic regression results based on our full sample. The simple model results confirm Kinney et al. (2004). The tax fee variable (TAX\_FEE) is negatively associated with restatements (p-value=0.0002) and the other service fee variable (OTHER\_FEE) is positively associated with restatements (0.0098). Audit-related fees (AR\_FEE) is not statistically significant (0.8541). In both Kinney et al. (2004) and our study, audit fees (AUDIT\_FEE) and the control variable (ACQUIS) are both positively associated with restatements, suggesting that complexities associated with audits and mergers are related to the probability of a financial restatement. We conclude that using a post-SOX investigation period does not alter the results documented by Kinney et al. (2004).

With the goal of identifying the effect of NAS frequency on auditor independence, we expand the model used by Kinney et al. (2004) in two manners. We add NAS frequency variables and additional control variables. To isolate the effect of frequency from the effects of additional control variables, we first include the additional control variables without distinguishing NAS frequency and then we re-estimate the model with the full set of variables as shown in equation (1). The logistic results using the additional control variables, client size ( $\log(\text{ASSETS})$ ), book-to-market ratio (BM), and financing indicator (FIN), and year-specific controls, are reported in table 3. The tax estimated coefficient is significantly negative and other

NAS estimated coefficient is positive. Audit fees and the control variables are significant in their hypothesized directions. These results replicate Kinney et al. (2004) with one exception. Audit-related NAS has a positive association with restatements (p-value=0.0025). We proceed by retaining the additional control variables in the model and replacing the three single-period NAS variables with recurring and nonrecurring NAS variables.

Insert Table 3

#### 4.2. The association between recurring and nonrecurring NAS and restatements

Table 4 reports the full sample multivariate logistic regression results based on estimating equation (1). Restatements are regressed on recurring and nonrecurring NAS variables, audit fees, and the expanded set of control variables. The explanatory power of our model, as measured by chi-square tests, is highly significant (p-values<0.0001). Consistent with our first hypothesis, all three recurring NAS estimated coefficients are significantly different from zero. Recurring tax (TAX\_RECUR) is negatively associated with restatements (p-value=0.0001). This inverse relationship suggest that recurring tax services are associated with improved financial reporting quality and increased auditor independence. Recurring audit-related and recurring other fees are positively associated with restatements (p-values are 0.0105 and 0.0378, respectively) suggesting that the provision of these services over consecutive periods is associated with a decrease in auditor independence. Among the nonrecurring NAS variables, the nonrecurring audit-related and other NAS support our second hypothesis. Audit-related (AR\_NON) and other (OTHER\_NON) are both positively associated with restatements. The full sample nonrecurring tax NAS fails to reject our second null hypothesis. Nonrecurring tax (TAX\_NON) is positive but not statistically significant (p-value=0.1660; two-tailed). Consistent with prior research, audit fees (AUDIT\_FEE) are positively associated with restatements.

Among the control variables, acquisitions, company size and the company financing variables are statistically significant and in their expected directions (ACQUIS, log(ASSETS), and FIN). The year-specific variables are significant for 2005 and 2006 but not 2004.

Although the logistic regression results provide empirical evidence that individual recurring and nonrecurring NAS variables are associated with restatements, it is unclear whether recurring and nonrecurring frequencies have unique effects on auditor independence. Recurring and nonrecurring NAS for each category could be indistinguishable in their associations with restatements. We test whether estimated coefficients for recurring NAS are significantly different from their nonrecurring counterparts. Consistent with our third hypothesis, the difference between recurring tax and nonrecurring tax is highly significant (p-value=0.0001; untabulated). Recurring tax NAS are associated with a lower probability of restatement and higher auditor independence. For audit-related and other NAS, the recurring and nonrecurring variables have positive associations with restatements. Despite having similar signs, the difference between the estimated coefficients for recurring and nonrecurring audit-related NAS is marginally significant (p-value=0.0668; untabulated). Similar to tax, the recurring frequency is associated with a lower probability of restatement. Likewise, the difference between recurring and nonrecurring other NAS is marginally significant (p-value=0.0863; untabulated) with recurring having the lower likelihood of restatement. Next we increase the power of the tests by partitioning restatements based on their classification.

#### Insert Table 4

Prior research suggests that the type of restatement can be an important consideration and can increase the power of tests. Palmrose and Scholz (2004) distinguish between restatements that affect core accounts and those that affect noncore accounts. They document that auditors are

more likely to be sued over restatements of core items. Ferguson et al. (2004) analyze restatements that affect earnings and balance sheet accounts separately and find that the association between NAS and restatements is sensitive to the type of restatement. Hennes, Leone, and Miller (2008) hand-collect data to distinguish restatements associated with irregularities (i.e., intentional misstatements) from those that are due to errors (i.e., unintentional misstatements). They classify restatements as irregularities if (1) the firm's 8-K describes the restatement using the term "fraud" or "irregularity" in the discussion of the restatement, (2) there is a related SEC or Department of Justice investigation, or (3) there is an independent investigation into the misstatement. Hennes et al. (2008) suggest that the remaining restatements are less likely to be associated with aggressive accounting and are classified as errors. They demonstrate the usefulness of increasing the power of tests by showing that executive turnover after restatements is higher for irregularities than errors. Empirical tests confirm that the market reacts more negatively to restatements involving fraud, core items, and irregularities than to other restatements (Palmrose, Richardson, and Scholz 2004; Hennes et al. 2006).

The Audit Analytics restatement database reports the reasons for each restatement. The complete list of reasons is shown on figure 1. Using prior research as a guide, we partition these reasons into three groups. The first group represents the restatements most likely to be associated with aggressive accounting (and the least likely to result from unintentional errors). The reasons most likely associated with aggressive accounting include fraud, reserve estimation, and revenue recognition (Palmrose and Scholz 2004; Nelson, Elliott, and Tarpley 2002; Hennes et al. 2008). Among the 4,713 full sample restatements, we have 1,200 restatements that include one or more of these three reasons. We refer to these restatements as high concern restatements. We expect the high concern restatements to provide the most powerful test of our three

hypotheses. At the opposite end of the spectrum, we aggregate several restatement classifications that are commonly associated with unintentional errors. We refer to these restatements as low concern restatements. Examples of these classifications include balance sheet classification issues and pro forma reporting issues. The technical complexity of certain accounting issues, such as derivatives, mergers, pensions, and the tax provision, results in many of the restatements occurring for these reasons to be the result of unintentional errors (Nelson et al. 2002, Palmrose and Scholz 2004). We include them in the low concern group. There are 1,089 restatements that belong to the low concern group. We expect these restatements to be a much less powerful test of our hypotheses, providing a sharp contrast to the high concern group (Hennes et al. 2008; Palmrose and Scholz 2004; Palmrose et al. 2004). Having identified high and low concern restatements, we isolate the remaining restatements and refer to them as our moderate concern group. These restatements are relatively difficult to identify as predominantly high or low concern making results based on these restatements difficult to interpret.

Insert Figure 1

Table 5 reports the results of estimating equation (1) separately using the high and low concern restatements with the 16,894 nonrestatements. The results using high concern restatements provide strong support for all three hypotheses. Recurring tax is negatively associated with restatements and highly significant (p-value=0.0061). Nonrecurring tax is positive and statistically significant (p-value=0.0390). The difference between the two tax variables is highly significant (p-value=0.0001; untabulated) which leads to the conclusion that recurring tax services are associated with increased auditor independence and nonrecurring tax services have the opposite effect. Nonrecurring audit-related NAS is positively associated with restatements (p-value=0.0006), but its recurring counterpart is only marginally positive (p-

value=0.0651). Similar to the tax category, recurring audit-related is significantly lower than its nonrecurring counterpart (p-value=0.0270; untabulated). Among other NAS fees, only recurring other services is statistically significant (p-value=0.0357) but the difference between frequencies is not significant.

A very different set of results emerge when using the low concern restatements. Using these 1,089 restatements and the 16,894 control group observations, only one NAS fee variable is significant. The nonrecurring other NAS estimated coefficient is positive (p-value=0.0234). Differences between recurring and nonrecurring NAS are insignificant for all three categories. Thus, the low concern restatements provide very little support for our three hypotheses.<sup>13</sup> Compared to the results using high concern restatements, the lack of statistically significant results using low concern restatements suggest a more powerful test of our hypotheses occurs when using the high concern restatements.

#### Insert Table 5

Hennes et al. (2008) note the difficulty of classifying restatements into categories, such as irregularities and errors, and rely on stock market returns to assess their approach. They provide evidence that companies with restatements classified as irregularities experience more negative stock price returns during the 181 days surrounding the restatement announcement than companies with restatements associated with errors. We compare the cumulative abnormal returns of firms announcing restatements in our high concern classification to the abnormal returns of firms in our low concern group using two alternative windows: 3-day and 181-day

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<sup>13</sup> The low concern restatements include restatements occurring for the following technically complex reasons: derivatives, mergers, pensions, and accounting for income taxes. Classifying these four restatement reasons as moderate concern, rather than low concern restatements, reduces the low concern restatements to 528 observations. Regressing this smaller set of low concern restatements with the nonrestatement observations yields a set of results (untabulated) that are comparable to the results based on the larger set of low concern restatements. Only one NAS variable is statistically significant (OTHER\_NON), and it is the only NAS variable that is significantly different from its frequency counterpart.

returns. The results (untabulated) show that the high concern restatements experience, on average, lower 3-day abnormal returns ( $p\text{-value}=0.0001$ ) and lower 181-day abnormal returns ( $p\text{-value}=0.0016$ ). These findings are consistent with the high concern restatements having a greater likelihood of being due to irregularities than the low concern restatements.

#### 4.3. Sensitivity tests for the definition of recurring and nonrecurring

Rather than assume each NAS category is synonymous with one frequency or the other, we define recurring and nonrecurring NAS using data from consecutive time periods. We use a forward-looking approach consistent with DeAngelo (1981) and Beck et al (1988b). As a test of the robustness of our results, we redefine recurring and nonrecurring based on three consecutive years of data. We define NAS as recurring if the auditor jointly provides the audit and the nonaudit service in the current year and in each of the two subsequent years. We make this determination for each of the three nonaudit services. We define NAS as nonrecurring if the auditor jointly provides the audit and NAS in the current year but does not provide that category of NAS in either of the two subsequent years. The control group consists of observations where the auditor does not jointly provide audit and NAS. The three-year definitions impose more requirements on the data, yielding a sample of 12,854 observations and 791 high concern restatements. The results based on this smaller sample (untabulated) are qualitatively similar to the reported results, including a significantly more negative estimated coefficient on recurring tax than nonrecurring tax NAS ( $p\text{-value}=0.0047$ ) and a marginally more positive estimated coefficient for nonrecurring audit-related NAS than recurring audit-related NAS ( $p\text{-value}=0.0634$ ). The difference between recurring and nonrecurring other NAS continues to be insignificant.

## 5. Conclusion

For decades, there has been a debate about the effect of jointly providing audit and nonaudit services on auditor independence. Since 2003, the SEC has required public companies to disclose their audit fees and three categories of nonaudit fees on the grounds that such data are useful. Despite the public availability of data the SEC refers to as useful, only a few studies examine the effects of individual NAS categories on financial reporting quality and auditor independence. Ours study extends this line of inquiry. We investigate whether category and frequency combinations of auditor-provided NAS individually and differentially affect auditor independence.

Our results show that post-SOX auditor-provided recurring tax services are negatively associated with restatements and positively associated with auditor independence. Our evidence suggests that nonrecurring tax services have the opposite effect on auditor independence. This combination of results supports the notion that recurring tax services, such as tax compliance, are more likely to yield knowledge spillovers that improve the audit. The remaining two NAS categories, audit-related and other, are positively associated with restatements regardless of their frequencies. Despite the similarity in the sign, the difference between estimated coefficients for recurring and nonrecurring audit-related NAS are significantly different. The difference between recurring and nonrecurring other NAS is not significant. The differences between recurring and nonrecurring NAS for the three categories suggest it is important to distinguish NAS categories and frequencies when investigating the effects of NAS on auditor independence.

Our study also contributes to a growing line of research that distinguishes the type of restatement. Prior research concludes that focusing on certain types of restatements may increase the power of tests. It shows a more negative market reaction to restatements involving

core items and irregularities, suggesting that those restatements are considered to be worse news and of greater concern than other restatements. We distinguish restatements based on whether they occur for reasons associated with aggressive accounting or unintentional errors which we refer to as high concern restatements and low concern restatements, respectively. The results based on the high concern restatements reject all three of our hypotheses and provide the basis of our conclusions. When the sample includes only low concern restatements, only nonrecurring other NAS is significant and no differences between recurring and nonrecurring NAS pairs are significant. The difference in our results based on high versus low concern restatements lead us to conclude that the type of restatement is an important consideration when examining the association between auditor independence and restatements. Researchers should consider the reasons for restatements rather than use all restatements interchangeably.

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Figure 1  
Classification of Reasons for Restatements of Financial Statements<sup>a</sup>

<p>High concern restatements:</p> <ul style="list-style-type: none"> <li>Fraud related restatements</li> <li>Liabilities, payables, reserves and accrual estimate failures</li> <li>Revenue recognition issues</li> </ul> <p>Moderate concern restatements:</p> <ul style="list-style-type: none"> <li>Accounts/loans receivable, investments &amp; cash issues</li> <li>Capitalization of expenditures issues</li> <li>Changes in accounting principles FASB/EITF or foreign GAAP</li> <li>Debt and/or equity classification issues</li> <li>Debt, quasi-debt, warrants &amp; equity security issues</li> <li>Depreciation, depletion or amortization errors</li> <li>Deferred, stock-based and/or executive comp issues</li> <li>Expense (payroll, SGA, other) recording issues</li> <li>Gain or loss recognition issues</li> <li>Inventory, vendor and/or cost of sales issues</li> <li>Lease, SFAS 5, legal, contingency and commitment issues</li> <li>Loan covenant violations/issues</li> <li>PPE intangible or fixed asset (value/diminution) issues</li> <li>SAB 108 Change in Accounting Policy</li> <li>SAB 108 Change in Estimate</li> </ul> <p>Low concern restatements:</p> <ul style="list-style-type: none"> <li>Acquisitions, mergers, disposals, re-organization accounting issues</li> <li>Audit or auditor related restatements or nonreliance</li> <li>Balance sheet classification of assets issues</li> <li>Capital adequacy and calculation issues</li> <li>Cash flow statement (SFAS 95) classification errors</li> <li>Comprehensive income issues</li> <li>Consolidation issues including FIN 46 variable interest &amp; off-B/S</li> <li>EPS, ratio and classification of income statement issues</li> <li>Financial derivatives/hedging (FAS 133) accounting issues</li> <li>Financial statement, footnote &amp; segment disclosure issues</li> <li>Foreign, related party, affiliated, or subsidiary issues</li> <li>Intercompany, investment in subs./affiliate issues</li> <li>Material Weakness - Section 404 or 302 issues identified</li> <li>Pension issues</li> <li>Pro forma financial information reporting issues</li> <li>Registration/security issuance issues</li> <li>Restatements made while in bankruptcy/receivership</li> <li>Retrospective revisions to prior year financials for consistency</li> <li>SAB 108 Miscellaneous Adjustments</li> <li>SAB 108 reversals of previous restated amounts</li> <li>Tax expense/benefit/deferral/other (FAS 109) issues</li> <li>Unspecified (amounts or accounts) restatement adjustments</li> </ul>
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**Notes:**

- a. Audit Analytics identifies one or more reasons for each restatement using the 40 reasons listed above. We classify the reasons into three groups: high, moderate, and low concern. Any restatement having one or more high concern reasons is included in the high concern group. The restatements having only low concern reasons are classified in the low concern group. All remaining restatements belong to the moderate concern group. There are 1,200, 2,424, and 1,089 restatements in the high, moderate, and low concern groups, respectively.

Table 1  
Sample selection process and sample composition

Panel A: Sample selection process and attrition by restatement status

	Restatements	Nonrestatements	Total
Initial sample <sup>a</sup>	5,231	24,248	29,479
Less: Missing data	263	1,930	2,193
Less: Nonrestatement years <sup>b</sup>	0	3,952	3,952
Subtotal	4,968	18,366	23,334
Less: Missing frequency data <sup>c</sup>	255	1,472	1,727
Full sample	4,713	16,894	21,607

Panel B: Sample composition by year and restatement status

	Restatements	Nonrestatements	Total
2003	1,400	4,510	5,910
2004	1,438	4,364	5,802
2005	1,155	4,148	5,303
2006	720	3,872	4,592
Total	4,713	16,894	21,607

**Notes:**

- a. Data requirements include auditor, audit fee, NAS fees, and control variables. These data are gathered from the Audit Analytics and Compustat databases for firm-years 2003-2006.
- b. We require that nonrestatement firms do not restate their financial statements in any of our investigation years
- c. Frequency of an NAS engagement is distinguished as either recurring or nonrecurring. Two consecutive years of NAS fee data are required to determine whether an engagement is recurring or nonrecurring.

Table 2  
Descriptive statistics

Panel A: Means and medians for restatement and nonrestatement observations<sup>a</sup>

	Restatement firms n=4,713		Nonrestatement firms n=16,894		Difference in mean: p-value	Difference in median: p-value
	Mean	Median	Mean	Median		
Audit fee	1,804	412	1,412	351	0.0001	0.0001
NAS fees:						
Tax	315	27	248	24	0.0007	0.1656
Audit-related	281	18	224	14	0.0047	0.0002
Other	76	0	62	0	0.1368	0.0124
Tax fees:						
Recurring	303	17	243	18	0.0021	0.4291
Nonrecurring	11	0	5	0	0.0069	0.0001
Audit-related fees:						
Recurring	264	7	215	7	0.0142	0.9588
Nonrecurring	17	0	9	0	0.0249	0.0005
Other fees:						
Recurring	58	0	52	0	0.4609	0.9310
Nonrecurring	18	0	11	0	0.0359	0.0003
Control variables:						
ACQUIS	0.15	0.00	0.12	0.00	0.0001	0.0001
Log(ASSETS)	5.40	5.56	5.65	5.79	0.0001	0.0001
BM	0.32	0.40	0.36	0.41	0.0047	0.0108
LEV	0.86	0.56	0.76	0.54	0.0001	0.0087
FIN	0.49	0.00	0.49	0.00	0.8453	0.8453

Panel B: Frequency of nonzero audit and nonaudit service fees

	Restatement firms n=4,713		Nonrestatement firms n=16,894		Difference in frequency p-value
	Frequency	Percent	Frequency	Percent	
Audit fee	4,713	100.0%	16,894	100.0%	N/A
NAS fees:					
Tax	3,356	71.2%	12,400	73.4%	0.0027
Audit-related	3,033	64.4%	10,738	63.5%	0.2559
Other	1,563	33.2%	5,279	31.2%	0.0090
Tax fees:					
Recurring	2,901	61.6%	11,130	65.9%	0.0001
Nonrecurring	455	9.7%	1,270	7.5%	0.0001
Audit-related fees:					
Recurring	2,511	53.3%	9,151	54.2%	0.2730
Nonrecurring	522	11.1%	1,585	9.4%	0.0005

Other fees:					
Recurring	985	20.9%	3,521	20.8%	0.8812
Nonrecurring	578	12.3%	1,758	10.4%	0.0002

Panel C: Means and medians of nonaudit service fees for nonzero observations

Variable	Restatement firms		Nonrestatement firms		Difference in means p-value	Difference in medians p-value
	Mean	Median	Mean	Median		
Audit fee	1,804	412	1,412	351	0.0001	0.0001
NAS fees:						
Tax	442	80	339	57	0.0001	0.0001
Audit-related	437	60	352	53	0.0066	0.0062
Other	229	23	200	19	0.2806	0.0009
Tax fees:						
Recurring	493	96	369	66	0.0001	0.0001
Nonrecurring	118	19	68	21	0.0360	0.4209
Audit-related fees:						
Recurring	496	71	397	65	0.0073	0.0828
Nonrecurring	154	27	94	21	0.0715	0.0008
Other fees:						
Recurring	277	24	247	19	0.4614	0.0105
Nonrecurring	149	22	104	18	0.1174	0.0441

**Notes:**

a. Variables are defined as follows:

- Audit fee = the total audit fees for financial statement audit and review services (in thousands);
- Tax = the total tax NAS fees provided by the auditor (in thousands);
- Audit-related = the total audit-related NAS fees provided by the auditor (in thousands);
- Other = the total other NAS fees provided by the auditor (in thousands);
- Tax-recurring = the total tax NAS fees provided by the auditor if the auditor provides tax NAS to the client in the current and consecutive year, and 0 otherwise (in thousands);
- Tax-nonrecurring = the total tax NAS fees provided by the auditor if the auditor provides tax NAS to the client in the current year but not in the following year, and 0 otherwise (in thousands);
- Audit-related-recurring = the total audit-related NAS fees provided by the auditor if the auditor provides audit-related NAS to the client in the current and consecutive year, and 0 otherwise (in thousands);
- Audit-related-nonrecurring = the total audit-related NAS fees provided by the auditor if the auditor provides audit-related NAS to the client in the current year but not in the following year, and 0 otherwise (in thousands);

- Other-recurring = the total other NAS fees provided by the auditor if the auditor provides other NAS to the client in the current and consecutive year, and 0 otherwise (in thousands);
- Other-nonrecurring = the total other NAS fees provided by the auditor if the auditor provides other NAS to the client in the current year but not in the following year, and 0 otherwise (in thousands);
- ACQUIS = an indicator variable equal to 1 if the company acquired another firm during the fiscal year, and 0 otherwise;
- log(ASSETS) = the natural log of total assets;
- BM = the book value of common equity divided by market capitalization;
- LEV = total liabilities divided by total assets;
- FIN = an indicator variable equal to 1 if the company issued more than \$10 million of debt and equity during the fiscal year, and 0 otherwise.

Table 3  
Logistic Estimates for Financial Restatements Regressed on Nonaudit Service Fee Variables<sup>a</sup>

		Full sample n=21,607 (restatements = 4,713)			Full sample n=21,607 (restatements = 4,713)		
Variable	Predicted sign	Estimated Coefficient	p-value		Estimated Coefficient	p-value	
Intercept		-1.868	0.0001	***	-3.919	0.0001	***
AUDIT_FEE	+	0.050	0.0001	***	0.299	0.0001	***
TAX_FEE	-	-0.013	0.0002	***	-0.015	0.0001	***
AR_FEE		0.001	0.8541		0.012	0.0025	***
OTHER_FEE	+	0.008	0.0098	***	0.012	0.0005	***
ACQUIS	+	0.208	0.0001	***	0.146	0.0013	***
log(ASSETS)	-				-0.204	0.0001	***
BM	+				0.028	0.0931	*
LEV	+				0.038	0.0007	***
FIN	+				0.129	0.0011	***
YR2004					-0.054	0.2267	
YR2005					-0.262	0.0001	***
YR2006					-0.678	0.0001	***
Chi-Square		57.58	0.0001	***	534.18	0.0001	***
Cox-Snell R <sup>2</sup>		0.003			0.024		
Nagelkerke R <sup>2</sup>		0.004			0.038		

**Notes:**

a. Variables are defined as follows:

- AUDIT\_FEE = the natural log of audit fees for financial statement audit services;
- TAX\_FEE = the natural log of tax NAS fees provided by the auditor;
- AR\_FEE = the natural log of audit-related NAS fees provided by the auditor;
- OTHER\_FEE = the other NAS fees provided by the auditor;
- TAX\_RECUR = the natural log of tax NAS fees provided by the auditor if the auditor provides tax NAS to the client in the current and consecutive years, and 0 otherwise;
- TAX\_NON = the natural log of tax NAS fees provided by the auditor if the auditor provides tax NAS to the client in the current year but not in the following year, and 0 otherwise;
- AR\_RECUR = the natural log of audit-related NAS fees provided by the auditor if the auditor provides audit-related NAS to the client in the current and consecutive years, and 0 otherwise;

- AR\_NON = the natural log of audit-related NAS fees provided by the auditor if the auditor provides audit-related NAS to the client in the current year but not in the following year, and 0 otherwise;
- OTHER\_RECUR = the natural log of other NAS fees provided by the auditor if the auditor provides other NAS to the client in the current and consecutive years, and 0 otherwise;
- OTHER\_NON = the natural log of other NAS fees provided by the auditor if the auditor provides other NAS to the client in the current year but not in the following year, and 0 otherwise;
- ACQUIS = an indicator variable equal to 1 if the company acquired another firm during the fiscal year, and 0 otherwise;
- log(ASSETS) = the natural log of total assets;
- BM = the book value of common equity divided by market capitalization;
- LEV = total liabilities divided by total assets;
- FIN = an indicator variable equal to 1 if the company issued more than \$10 million of debt and equity during the fiscal year, and 0 otherwise;
- YR2004 = an indicator variable equal to 1 if the year is 2004, and 0 otherwise;
- YR2005 = an indicator variable equal to 1 if the year is 2005, and 0 otherwise;
- YR2006 = an indicator variable equal to 1 if the year is 2006, and 0 otherwise.
- b. \*\*\*, \*\*, \* Statistical significance at the 0.01, 0.05, and 0.01 levels, respectively. Based on one-sided tests if the sign is predicted, otherwise two-sided.

Table 4  
 Logistic Estimates for Financial Restatements Regressed on Recurring and Nonrecurring  
 Nonaudit Service Fee Variables<sup>a</sup>

$$\begin{aligned} \text{RESTATE} = & \beta_0 + \beta_1 \text{AUDIT\_FEE} + \beta_2 \text{TAX\_RECUR} + \beta_3 \text{TAX\_NON} + \beta_4 \text{AR\_RECUR} \\ & + \beta_5 \text{AR\_NON} + \beta_6 \text{OTHER\_RECUR} + \beta_7 \text{OTHER\_NON} + \beta_8 \text{ACQUIS} \\ & + \beta_9 \log(\text{ASSETS}) + \beta_{10} \text{BM} + \beta_{11} \text{LEV} + \beta_{12} \text{FIN} + \beta_{13} \text{YR2004} + \beta_{14} \text{YR2005} \\ & + \beta_{15} \text{YR2006} + \varepsilon \end{aligned}$$

		Full sample n=21,607 (restatements=4,713)		
Variable	Predicted sign	Estimated coefficient	p-value <sup>b</sup>	
Intercept		-3.939	0.0001	***
AUDIT_FEE	+	0.298	0.0001	***
TAX_RECUR		-0.016	0.0001	***
TAX_NON		0.009	0.1660	
AR_RECUR		0.010	0.0105	**
AR_NON		0.020	0.0005	***
OTHER_RECUR		0.009	0.0378	**
OTHER_NON		0.019	0.0003	***
ACQUIS	+	0.147	0.0013	***
log(ASSETS)	-	-0.197	0.0001	***
BM	+	0.025	0.1194	
LEV	+	0.039	0.0006	***
FIN	+	0.126	0.0014	***
YR2004		-0.059	0.1866	
YR2005		-0.268	0.0001	***
YR2006		-0.678	0.0001	***
Chi-Square		561.69	0.0001	***
Cox-Snell R <sup>2</sup>		0.026		
Nagelkerke R <sup>2</sup>		0.040		

**Notes:**

- a. Variables are as defined in table 3.
- b. \*\*\*, \*\*, \* Statistical significance at the 0.01, 0.05, 0.10 levels, respectively. Based on one-tailed tests for signed predictions, two-tailed tests otherwise.

Table 5

Logistic Estimates Using Recurring and Nonrecurring Nonaudit Service Fee Variables for each Fee Category while Distinguishing High and Low Concern Restatements<sup>a</sup>

$$\begin{aligned} \text{RESTATE} = & \beta_0 + \beta_1 \text{AUDIT\_FEE} + \beta_2 \text{TAX\_RECUR} + \beta_3 \text{TAX\_NON} + \beta_4 \text{AR\_RECUR} \\ & + \beta_5 \text{AR\_NON} + \beta_6 \text{OTHER\_RECUR} + \beta_7 \text{OTHER\_NON} + \beta_8 \text{ACQUIS} \\ & + \beta_9 \log(\text{ASSETS}) + \beta_{10} \text{BM} + \beta_{11} \text{LEV} + \beta_{12} \text{FIN} + \beta_{13} \text{YR2004} + \beta_{14} \text{YR2005} \\ & + \beta_{15} \text{YR2006} + \varepsilon \end{aligned}$$

		High concern restatements n=18,094 (restatements=1,200)			Low concern restatements n=17,983 (restatements=1,089)		
Variable	Predicted sign	Estimated coefficient	p-value <sup>b</sup>		Estimated coefficient	p-value	
Intercept		-8.367	0.0001	***	-5.174	0.0001 <sup>b</sup>	***
AUDIT_FEE	+	0.594	0.0001	***	0.205	0.0001	***
TAX_RECUR		-0.019	0.0061	***	-0.003	0.6583	
TAX_NON		0.022	0.0390	**	0.004	0.7819	
AR_RECUR		0.014	0.0651	*	-0.004	0.6443	
AR_NON		0.035	0.0006	***	-0.005	0.6919	
OTHER_RECUR		0.016	0.0357	**	0.005	0.4957	
OTHER_NON		0.009	0.3607		0.022	0.0234	**
ACQUIS	+	0.193	0.0103	**	-0.059	0.7294	
log(ASSETS)	-	-0.309	0.0001	***	-0.054	0.0107	**
BM	+	0.068	0.0474	**	0.298	0.0001	***
LEV	+	0.013	0.2919		0.128	0.0001	***
FIN	+	0.002	0.4884		0.037	0.3189	
YR2004		-0.244	0.0019	***	-0.016	0.8522	
YR2005		-0.581	0.0001	***	-0.159	0.0752	*
YR2006		-1.002	0.0001	***	-0.431	0.0001	***
Chi-Square		412.33	0.0001		115.84	0.0001	***
Cox-Snell R <sup>2</sup>		0.023			0.006		
Nagelkerke R <sup>2</sup>		0.058			0.018		

**Notes:**

a. Variables are as defined in table 3.

b. \*\*\*, \*\*, \* Statistical significance at the 0.01, 0.05, 0.10 levels, respectively. Based on one-tailed tests for signed predictions, two-tailed tests otherwise.